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Revision Processes of Grade 7 Competent Writers Utilizing Word Processors

by

(C) Jude Mary Clare De Almeida-van Hooydonk

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF Master of Education

DEPARTMENT OF SECONDARY EDUCATION

EDMONTON, ALBERTA

Fall, 1986

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THE UNIVERSITY OF ALBERTA

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John E. Oster

Supervisor

Patricia Bryan

Thomas Kieren

Date October 6, 1986

Abstract

This study focused upon examining the revision processes employed by two grade seven competent writers as they completed six composition tasks on word processors. The purpose of this study was to contribute to the understanding of how students compose on word processors.

Four of the six composition tasks were initiated by the researcher, one by the language arts teacher, and one by the social studies teacher. The topics included expository, narrative, and descriptive compositions, as well as a social studies report. All the writing was done at the homes of the two students with the researcher present. Retrospective insight into the students' composing processes on the word processor was made possible through students commenting while viewing the process drafts that were printed at various times during the composing process. Personal data on the students were obtained through interviews with teachers and parents, and from school records.

Analyses was made of all retrospective data and printed process drafts. A Category System of Revision was developed inductively from examination of the transcripts of both students' retrospective comment on the six writing tasks. The Category System of Revision included four categories: Content, Organization, Style, and Mechanics. These categories were used to identify and categorize the various types of revisions made by the students.

Written products were analyzed and the quantitative data obtained were used in interpreting the effects of the word processor on the writing process, and building profiles of the two student writers. Pre-study and post-study interviews were also analyzed.

Word processors were found to be a valuable writing aid which assisted students significantly in revision and editing. At the close of the study, the student writers understood revision to mean not only the process of reading over and correcting, but also the process of changing and amending while still composing. The majority of revisions were in the categories of Mechanics and Style, with the most significant revisions occurring in Style. Both students with the aid of the word processor experienced an improvement in the quality of their work, as judged by their teachers.

Implications for teaching included the value of word processors for motivating students and increasing the use of revision in their writing practice.

Recommendations were made for further research into the effect of computers on students' writing quality and writing processes.

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Chapter I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Overview

This introductory chapter outlines the general nature of this study, its purpose, and the questions it sought to answer. The design of this study is briefly outlined, its limitations stated and its significance noted. Terms used throughout the study are defined.

Introduction

The process approach to writing has been an area of extensive research over the past fifteen years. Janet Emig (1971) and Donald Graves (1973), both pioneers in this area of research, employed the case study method to examine the writing processes (or writing stages) of high school and elementary students respectively. The formation and development of various drafts of an individual piece of writing is considered by writing theorists such as Emig and Graves, to be the most effective way of creating a final written product that is carefully and logically developed. They believe that through this approach, writers are able to improve and develop their ideas.

Ideally, with patience and with time, this process approach to writing can be employed with good results. However, often experienced writers (let alone students) do not have the steadfastness required to engage in what they

consider to be painstaking effort. Researchers, including Henderson (1980) and Stallard (1974), have discovered that the students who excel in written compositions are most frequently those who carefully and patiently revise their work at various stages before submitting the final product for evaluation. Those students who hurriedly submit an unrevised composition for the mere sake of fulfilling the assignment generally receive composition grades that are average or below average. When teachers request that a copy of the rough draft be submitted along with the final draft of any composition assignment, it is not difficult to note the degree of revision students incorporate in their writing processes.

Students often do not wish to revise and re-write when they consider the time and effort required because recopying each draft by hand is troublesome and tedious work. Some students, preoccupied with neatness, find it ungratifying to cross out, erase, add to, or change in any way their compositions as they compose (Calkins 1980). They expect their ideas to flow and as quickly to capture them in written form. When it is difficult enough to write down their thoughts as they come, why bother with seemingly minor alterations? If a student were able to dictate to an automatic technical aid that was programmed to make necessary corrections as required while the student spoke aloud his thoughts and ideas, it would indeed be a popular innovation.

One of the benefits of the computer age has been the use of word-processing programs. These innovative programs have enabled professional writers the luxury of revising and re-writing without the additional task of retyping an entire piece of original writing. Word processing programs allow the writer to delete, replace, move, or insert text with ease. The writer can change and revise whole paragraphs as well as correct all spelling errors. Today word processors are available that suggest proper development of paragraphs and indicate suitability of style and various other writing concerns. Some of the more interesting things the word processor can do will be discussed in the next chapter.

With the speed and ease with which changes can be made through word processing, the writing process may become much more satisfying and enjoyable. There is no need to concern oneself with countless handwritten or typed drafts when the efficiency of the word processor becomes apparent. The writer can quickly and accurately note the effect that major changes can have on the text as a whole by comparing it with a previous copy. This enables him or her to adjust and make additional changes if necessary.

The attractiveness of computer technology is widely recognized by today's youth. Home and commercial computers have found their niche in the everyday lives of many students, who appear to enjoy and find stimulating the novel approaches of the computer.

However, utilization of word processors in composition classes is not completely effortless. A new command terminology has to be learned by students utilizing the word processor. Also, they must become familiar with typing on the keyboard. This may prove discouraging to some students. Likewise, as studied by Collins and Genter (1980), the editing abilities of the word processor are only advantageous when the student has a clear understanding of how and what to edit.

Similarly, this study was concerned with the revision processes of students who employed the use of word processors. This researcher examined what students did as they composed and revised a written piece with the assistance of word processors. As the writing process is of a complex, personal nature, this study examined in-depth, two grade-seven writers engaged in a selected number of writing activities.

Purpose of the Study

The purpose of this study was to contribute to our understanding of the nature of how students compose on word processors. Since writing theorists such as Emig and Graves are of the opinion that revision is the key to developing well-written compositions, the researcher sought to determine if and how word processors affected the revision processes attempted by two grade seven competent writers.

Research Questions

A search for answers to the following questions comprised the major focus of this study:

1. In what ways do word processors assist writers in revising and improving written compositions?
2. What benefits or problems are apparent in utilizing word processors for writing tasks?
3. What insights into the revision process can be attained from the retrospective comments of student writers utilizing word processors?
4. What conception of writing is held by grade seven competent writers? Does this conception change because of the use of word processors?
5. To what extent do students revise in the major areas (such as content, style, organization, and mechanics)?
6. Do the attitudes of the students and the quality of their work change while utilizing word processors?

Procedures

The following is a brief explanation of the procedures involved in this study. A more in-depth discussion of the procedures is included in Chapter III.

Two students were selected as subjects for this study. These students, from an Edmonton area public junior high school, were identified by their teachers and principal as mature, above-average writers at the grade seven level, with well-developed communication skills. Both students also had

access to computers.

Six composition tasks were performed by each student. The assignments were written as home assignments. Written topic descriptions were given to the students to initiate writing.

The researcher met individually with each subject at his home six times over a period of two months. The researcher maintained a journal on the students' overt writing behaviour during these meetings. Retrospective comments were obtained by having the subjects review the process drafts and comment on the thought and editing processes in the composition. Retrospective comments and dialogue between the subjects and researcher were recorded and transcribed.

In addition to data gathered on the revision process while utilizing word processors, personal data on the subjects was gathered. The purpose of acquiring this information was to build a profile of each writer and to gain understanding of the complete context within which the compositions were written. Interviews were held both with students' teachers and with their parents. The researcher was given access to school records and test results of each child to gather further personal and academic details about each child.

The retrospective comments of both students as well as comparisons of process drafts were carefully examined and classified by the Category System of Revision under the

headings of Content, Organization, Style, and Mechanics. The writing processes of both students were described in terms of their references to each category. Two language arts teachers were asked to classify the revisions of one of the compositions under the Category System of Revision to determine if any discrepancy existed between their classification and the researcher's. No discrepancies were noted.

Limitations and Assumptions of the Study

The following limitations characterized this study:

1. The small number of subjects limits the possibilities of making any generalized discoveries.
2. This study extended over a relatively short period of time (twelve weeks), and was limited to investigating the writing of a small number of composition tasks assigned by the researcher.
3. The value of the retrospective data is limited by the suitability of the recall techniques used.
4. It is not known what changes may have occurred because of the presence of the researcher.
5. The generalizability of the study is limited because the subjects were competent writers with keyboard experience.

The following assumptions characterized this study:

1. The presence of the researcher would not substantially alter the way that the students wrote.

2. The glimpses into the composing processes of these student writers would be applicable to other writers.

Significance of the Study

Research studies by Emig (1971) and Graves (1975) show that students spend little time in the revision stage of composing. As a result of the demonstrated potential of word processors in this area, the researcher considered that a study of the revision processes of grade seven competent writers utilizing word processors would be particularly enlightening. Further, as school boards continue to expend funds on purchasing computer hardware, more ways of utilizing the word processor in the language arts class should be explored; particularly in an area as important as the improvement of writing competency.

Although considerable research on the composing process has been reported, comparatively little research on the revision processes of students utilizing word processors has been reported. This study makes a significant exploration into one area of the complex field of the composing process.

Definition of Terms

In this study the following terms have been used as defined:

Case Study: a research investigation involving a bounded context in which one studies events, processes and outcomes.

Category System of Revision: a classification system for recording areas of revision (Content, Organization, Style and Mechanics) initiated by the student while composing on word processors.

Computer-Assisted Instruction (C.A.I.): use of computers to present programs or otherwise facilitate or evaluate learning.

Grade Seven Competent Writer: a grade seven student judged by his language arts teacher and school principal to be capable of producing written compositions of high quality in comparison to other grade seven students' written compositions.

Retrospective Data: the transcription of the subjects' comments on the writing made after the completion of each writing assignment.

Word Processor: a computerized system using an electronic typewriter to write, edit, store, and retrieve letters, records, etc.

Chapter II

REVIEW OF THE LITERATURE

Overview

Teaching writing is one of the most challenging aspects of being an English teacher, and teaching students to revise, and edit is one of the most difficult areas of instruction in the writing process. As Donald Murray (1980) states:

> In the writing process approach, the teacher and student face the task of making meaning together. The task is ever new, for they share the blank page and an ignorance of purpose and of outcome. They start on a trip of exploration together. They find where they are going as they get there.
>
> This requires of the writing teacher a special kind of courage. The teacher not only has to face blank papers but blank students worried by their blankness, and a blank curriculum which worries the teacher's supervisors. The teacher has to restrain himself or herself from providing a content, taking care not to inhibit the students from finding their own subjects, their own forms, and their own language. (p. 13)

However, apart from these cautions, Cooper and Odell (1978) question whether English teachers understand the meaning of "composition". They refer to Richard Braddock's study which questions the use of the topic sentence. They also cite Janet Emig's studies which challenge the convention of outlining before writing. The results of these studies indicate that much is yet to be learned about the complex act of composing.

Researchers such as Donald Murray (1980), and Peter Elbow (1981), have continually stressed that to develop

one's writing, one must write. These researchers show that writing should not be taught as a series of skills, with the onus being on the writer to make connections and logically apply those skills, but that it must be taught as a continuum of stages such as prewritng, writing, and rewriting.

Further, research by Donald Graves (Green 1984), and Peggy O'Brien (1984), demonstrate that composing on the word processor assists students in developing texts to a fuller capacity in terms of length and idea processing. Although it has not yet been conclusively proven that student writing improves as a result of the use of the word processor, evidence by Margaret Mittricker (1983), does suggest that students are motivated to write more and that their response to writing assignments is positive as a result of its use.

In the following section I will first discuss some examples of innovative computer-assisted instruction in composition, before discussing word processors and their applicability to the composing process.

Computer-Assisted Instruction in Composition

A variety of computer programs aimed at teaching writing are available on the market today. One of the most effective in assisting with prewriting is the Story Maker, produced by Andee Rubin of Bolt Beranek and Newman, Inc., a Boston educational consulting firm. The program is designed to give students the opportunity to participate in creative

decision-making. Students are provided with a variety of prewritten story options from which to choose and build their own story. The learning advantages of this program include allowing the student to focus on the entire text, logical sequencing, the importance of detailed explanations as well as giving students the opportunity for creative control. In the initial stages of the program the student discovers how one choice affects the story and its outcome. The cognitive level at which students direct the language indicates that they can develop effective writing skills. The main attractiveness of this program is that the student is able to focus on creating. The computer in the end will print the final story. The student does not have to be concerned with writing, re-writing, erasing, or other tedious tasks. Instead the student can concentrate on making choices and interpreting the effects of those choices.

Although the Story Maker approach focuses on writing in a novel way, the researcher questions its effectiveness in encouraging students to explore their own creativity. Theorists such as Donald Murray (1984), and Peter Elbow (1981), indicate that students write best when they are able to reflect upon their own experience. This approach does not allow them the freedom to do so. In order for students to write from their own experience they should be given the opportunity to create their own choices.

Hugh Burns (1980), of the Air Force Academy English Department has created a program to assist with the

prewriting stage as well. The program employs questions based on Aristotle's enthymeme topics to encourage the students in a Socratic-type dialogue. This dialogue engages students in a discussion of their topics for the purpose of generating new information, outlook and position. Burns claims that this type of dialogue assists students in expressing their ideas more precisely.

Various computer applications are also now available to assist with the rigorous work of editing and rewriting. Word processing programs are available that suggest proper development of paragraphs, indicate suitability of style, as well as check syntax and spelling.

The Writer's Workbench, a production of Bell Laboratory scientists in New Jersey is probably one of the most highly sophisticated programs to date to assist with rewriting and editing. Once the text is entered, the system has the capabilities to correct spelling, punctuation and grammar. However, the most impressive aspect of the system is its ability to analyze style and offer suggestions to the writer on sentence length, cliches, wordiness and jargon. The editorial abilities of this system make it one of the most appealing to veteran writers.

However, Robert Hertz (1983), and Lawrence Oliver (1984), cite some disadvantages of using computer programs that attempt to analyze and evaluate students' writing. They believe that the Writer's Workbench judges writing on a superficial basis, as the program provides comments and

grades. They raise some important issues about the use of the computer in the evaluation of writing, and question whether a computer can judge such aspects as style, argumentation, or creativity. One wonders as well how the computer can assess the student's intention and judge his or her work in regard to how well it fulfills the writer's purpose.

The Ontario Institute for Studies in Education has developed three programs to actively assist with the composing process. The first, Computer as Consultant: CAC-1 serves as a text editor programmed to assist in a number of ways such as: 1) following an argument plan, 2) producing the next sentence, 3) changing words, and 4) checking unsure words.

The CAC-2 program serves as a questioner. Rather than responding to student-initiated requests for help, it intervenes at the end of every sentence.

The third program in the series is the Computer as Collaborator: Explore. This program produces the content and linguistic form of sentences, while the student accepts responsibility for the structure and style of the paper. The student selects the appropriate sentences according to the structure and style desired. This type of collaboration helps the student to focus on particular aspects of the composing process otherwise not afforded.

Although this approach assists the writer in focusing on structure and style, the researcher is concerned that

this program places no responsibility for content on the writer. For a computer-assisted writing program to be effective, should equal emphasis not be placed on giving the writer responsibility for his or her content?

Computer-assisted instruction in writing can be a useful tool only if the general problems associated with the writing process are realized. As Colette Daiute (1985) indicates, computer-assisted instruction can only be effective in an effective writing structure. Athough many of the above-mentioned programs have yet to reach the classroom or win the favor of classroom teachers, researchers such as Gwen Solomon (1986) and Colette Daiute (1985) believe that computer-assisted instruction is quickly becoming the state-of-the-art in the teaching of composition.

Word Processors and the Composing Process

Researchers such as Solomon (1986), and Daiute (1985), have found that word processing programs can assist students who encounter problems with writing in numerous ways. They claim that students employing word processors generally find it much easier to create a rhythm as well as a focus on what they want to say. They also indicate that students who are forced to deal with poor handwriting and poor use of writing mechanics find the difficulties encountered in written expression to be particularly cumbersome. Papert (1980), observes that the ability to delete and edit efficiently on the word processor is highly motivational:

> For most children rewriting a text is so laborious that the first draft is the final copy, and the skill of rereading with a critical eye is never acquired...This changes dramatically when children have access to computers capable of manipulating text...I have seen a child move from total rejection of writing to an intense involvement (accompanied by rapid improvement of quality) within a few weeks of beginning to write with a computer. (p. 30)

Papert states that word-processing programs assist in developing language skills much more creatively than the popular use of computer-assisted instruction in grammar and spelling drills or multiple-choice comprehension tests. Further, the ability to insert, delete, prune, expand, and rearrange text without recopying makes revision a much simpler and more inviting task.

Haas and Hayes (1986), discovered that junior high school students who used a word processing program made more word-and-sentence-level revisions, but not more whole text revisions than they did when they used pen and paper. When Haas and Hayes compared this group of students to another group of junior high school students who employed the use of a revision prompting program along with a word processing program, they found that the latter group made far more whole text revisions because they were required to interact more closely with the text. The researchers concluded that instructional prompting programs attached to word processing programs are valuable in encouraging students to revise the whole text.

Daiute (1986), interviewed sixteen adult computer-writers on their use of the computer for writing. Although the writers found the computer to be very useful in writing, they cited some disadvantages such as difficulty in locating information, detecting errors, and reading their texts critically. Further:

> Many users commented that the amount of text available at one time on a standard terminal screen was insufficient. Several used the words "getting a sense of the text" when referring to their reservations about computer reading: "With the computer I have no sense of the whole text"; "There is a problem getting a feel for the piece". (p. 144)

Word processors have been found useful to students with learning handicaps. Valerie Arms (1984), discovered in her case study with a dyslexic university student, that the word processor could assist the individual with developing his writing skills. If earlier intervention with the word processor had been possible, his life would likely have been much easier.

In a classroom study, O'Brien (1984) found that both good and poor students can benefit from the use of the word processor. It was shown to be a highly motivational tool for all students, but particularly for those students who had difficulty with composition and handwriting. O'Brien emphasizes the ease with which revisions can be made and perfect-printed copies produced as important factors in the word processor's success in motivating students to write.

Word processors have also been successful in creating classroom novels (Filip 1984). In Filip's classroom study

students were responsible for the creation of a chapter composed on the word processor. The students were highly motivated to write and the results were encouraging.

Kane (1983), investigated how eighth-grade students used a microcomputer-based word processing system for composing. Five students with varying writing ability used the system for ten class sessions. The methods of data collection used were: 1) interviews about a) their model for composing, b) experiences that influenced their development as writers, and c) evaluation of the computer as a medium for writing; 2) observation of students during writing sessions; and 3) printouts of text files from each class session. Kane concluded that:

> As with pencil and paper, the students produced text linearly, trying to write each sentence perfectly before going on to the next. Most revisions were corrections of spelling or punctuation. However, there was some evidence that the computer can be used to promote involvement with composing, focus attention on the overall organization of the text, provide opportunities for practicing revision procedures, and create a context for experimenting with alternative texts. (p. 3)

Margaret Mittricker (1983), is a teacher who introduced her high school English students to word processing, and reported significant improvements in their writing. Her class was divided into groups and given a group-writing assignment that involved an opinion paper. The emphasis was placed on process rather than content. Both the Bank Street Writer and Apple Writer word processing programs were used. The students used the word processor to brainstorm topic ideas, to generate details, and of course to revise and

edit. She observed that the students experimented with a variety of changes in sentence structure and paragraph order, and deliberated on the effects that these changes had on their text as a whole. Mittricker makes an interesting observation of the students' eagerness to revise:

> The temporary nature of their work on the computer screen as compared to the more permanent feel of a handwritten copy seemed to add to their willingness to experiment with revision. Because their words on the screen could be rapidly manipulated, most of the students seemed to see the process of revising as less personally threatening. (p. 35)

As research on computer composing and writing quality continues, some skepticism has also surfaced. As Daiute (1985), reports:

> Writers who comment on the effects of computers on society have noted that writing done on the computer tends to be sloppier than writing done with traditional tools. The few studies of writing quality have shown that writing on the computer is sometimes rated lower than writing done by the same people with traditional tools. This research is not conclusive, because none of the studies have been done after the writers have become as comfortable with the computer as they are with pen or typewriter. Researchers would have to examine many types of writing done by the same people using various tools over a long period of time to discover whether computer writing is sloppier writing. (p. 113)

Researchers such as Daiute (1985), and Solomon (1986), generally concur that word processing programs do simplify the revision process. Programs such as spelling checkers, on-line dictionaries and thesauruses, on-line style and grammar manuals, all assist writers with the mechanics of writing, thus also simplifying the editing process. However, one might question whether these programs actually teach

students how to edit or just simplify the process.

Among professional writers who have found word processors to assist them with their writing is William Zinsser (1983) who considers them just as invaluable for children:

> The new technology could erase the biggest obstacle that frustrates children learning how to write: the sheer labor of writing. Children are natural writers. Their heads are full of imagery and wonder and wordplay and free association; their use of language is fresh and unexpected. But their hands are far slower than their thoughts....I can't think of a quicker way to give them a sense of enjoyment that comes from playing with words than to let them write on a screen where all things are possible and all mistakes are instantly forgiven, where the touch is light and the page is forever tidy. (p. 61)

Although areas for further research include whether word processing programs improve writing quality, and whether the present QWERTY keyboard system is a disadvantage to student learning, current research demonstrates that composing on the word processor has many significant advantages for students.

Chapter III

DESIGN AND PROCEDURES

Overview

This chapter begins with a description of the design of the study, the selection of subjects, and the tasks assigned. In subsequent sections there are accounts of procedures used for gathering two main types of data - data on the revision processes of subjects utilizing word processors, and personal data.

Design

Donald Graves (1984) and Peggy O'Brien (1984) have demonstrated that composing on the word processor assists students in developing texts to a fuller capacity in areas of length and idea processing. Margaret Mittricker (1983) discovered that students are motivated to write more and that their response to writing assignments is positive as a result of its use. As well, researchers such as Solomon (1986) and Daiute (1985) have found that word processing programs can assist students with writing by helping them to focus mainly on what they want to say, rather than on how the writing appears on paper. Encouraged by these discoveries, the researcher sought to determine if and how the word processor affected the revision processes attempted by two grade seven competent writers.

The case study method was implemented in this study. The researcher was of the opinion that a certain depth of understanding could be obtained by this approach, and that working in the naturalistic setting would provide the opportunity to gain an understanding of the subjects in order to better understand the context of their writing.

A pilot study was conducted in a junior high school in the separate school system of the city of St. Albert in January, 1985. The purposes of the pilot study were to throw light upon: 1) the suitability of grade seven competent writers as subjects for a study of writing processes utilizing the word processor; 2) the usefulness of obtaining retrospective comments on writing processes with reference to printed process drafts; and 3) the suitability of writing tasks for gaining insight into revision processes while utilizing word processors. The pilot study indicated that insight into the revision processes of students utilizing word processors could be gained by a study of the retrospective comments of students prompted by the printed process drafts, as well as by analyses of the written products. The design of this study was based upon the information gained in the pilot study. A more complete discussion of the pilot study can be found in Appendix A.

Grade seven students were selected because the researcher was most experienced at teaching at this grade level. Students with proven competence in writing were selected. The conscious choice of competent writers was

influenced by the view that much can be learned of the nature of a process from the study of students proficient in the performance of that process.

In selecting competent writers, the judgement of teachers was considered the most reliable guide. The students were selected by the researcher on the recommendation of the teachers and administration of the school involved. As well, the availability or access to a computer was also critical in the selection of student subjects.

As it was desirable to study the student writers in as close to a naturalistic setting as possible, the researcher made a total of six visitations to each student's home to observe each student composing on the computer.

Subjects

Two grade seven students from an Edmonton area junior high school were selected for the study. The school has a net enrolment of 412 students with 92 students in grade seven.

The school administration and grade seven teachers were acquainted with the purpose of the study and asked to recommend as subjects students whom they judged to be competent writers at the grade seven level. The recommendation was also based on the student's ability to communicate well and be willing, cooperative participants.

Once the recommendations were completed, the researcher met with both students individually to gain a better understanding of the student's suitability for the study. The researcher accepted the recommendations of the school administration and grade seven teachers, in the selection of two grade seven boys.

A letter was sent by the researcher to the parents of each selected student. The general nature of the study was outlined, and permission for the student to be studied was sought. The parents gave the necessary permission, and the researcher spoke with both sets of parents to clarify any questions. Both sets of parents were very cooperative and eager for their child to be involved in the study.

Tasks

The two students were asked to complete six pieces of writing for this study. Four of these pieces were assigned by the researcher, one by the language arts teacher, and one by the social studies teacher. All of these tasks were completed at home in individual writing sessions, with the researcher present.

As the purpose of the study was to examine the students' writing processes on the computer, as well as to observe as much as possible about how a piece of writing takes its shape with the assistance of the word processor from beginning to end, it was desirable that the degree of input from the researcher be kept to a minimum.

Verbal directions were given by the researcher to initiate writing in the four tasks assigned by the researcher. These tasks involved writing two expository compositions, one narrative composition, and one free choice of topic composition. These tasks were designed in such a way that the written product would be relatively "free" and not too greatly restricted by the demands of the task.

The audience for writing was primarily the researcher, as well as the teacher of the students. It was also understood that the two students would have the opportunity to share their writings with each other at the close of the study.

In three of the tasks assigned by the researcher, once the directions were given and clarified for the student, the student was asked to write a composition immediately. In the last composition assigned by the researcher (the free choice of topic composition), the student was given a few days to consider his topic. The language arts assignment and the social studies assignment allowed the students a few days of preparation as well.

Thus, the six writing tasks involved the writing of compositions initiated by the verbal directions of the researcher, language arts teacher, and social studies teacher, with varying degrees of choice of topic, with some variation of the anticipated audience and with varying amounts of time being given for preparation for writing.

Data Gathering Procedures

Data gathered for the study were of two main types: 1) data on the revision processes of subjects utilizing word processors and 2) personal data.

Data on the Revision Processes of Subjects Utilizing Word Processors

Following the initial meeting with the students, the researcher met with each student, individually, six times over a period of twelve weeks from January to March, 1986. Although the meetings were originally intended to be held on a weekly basis, family circumstances sometimes postponed the meetings to more convenient times.

Meetings with student, Ashif, took place in the dining room of his home, with the computer set up on the dining room table. Meetings with student, Wesley, took place in the family den where no interruptions took place. (Throughout the study the actual first names of the students will be used at the request of their parents.)

Meetings with the Students

Prior to the commencement of the study, a pre-study interview was held with the students. The purposes of this interview were to determine each student's conception of writing and revision prior to utilizing the word processor, as well as to gain an understanding of their expectations of writing with the aid of the word processor. At the pre-study interview it was indicated to the researcher that for the

purpose of the study Ashif would be utilizing the Sperry microcomputer with the Microsoft IBM word processing program, and that Wesley would be utilizing the Commodore 64 microcomputer with the Indus GT Estate word processing program.

At the first meeting, some time was spent in informal discussion aimed at allowing the researcher and student to become comfortable in the home setting. The general nature of the tasks and procedures of the study were once again outlined. At this meeting, the students demonstrated to the researcher the workings of their word processors and described the various commands.

The first expository composition: Informative Composition was written at this meeting. At this meeting, and all subsequent meetings, journal notes were kept by the researcher on the student's overt writing behaviour during the composing process. Hard copies of the composition in progress were printed during the natural pauses in the composing process. Retrospective comment on the writing was given by the student at the end of the composition.

At the second meeting, the second expository composition: "Choosing One's Own Parents" was composed on the computer.

At the third meeting, the narrative composition: "Mistaken Identity" was composed on the computer.

At the fourth meeting, the free choice of topic composition was composed on the computer. The students were

made aware of this composition a few days prior to this meeting to allow time to reflect on a topic of their choice.

At the fifth meeting, the descriptive composition assigned by the language arts teacher: "Homemade Monster", was composed on the computer by Ashif, and the "Letter to NASA", also assigned by the language arts teacher was composed on the computer by Wesley.

At the sixth meeting, the social studies report assigned by the social studies teacher: "Pygmy Report" was composed on the computer. The nature of this writing differed from the others in that the student obtained information for the report from various sources such as class texts, teacher notes and film strips. These notes were saved on the word processor and put into order for the report at this meeting.

An overview of the writing tasks and directions given by the researcher and teachers involved are included in this chapter as Table 1.

TABLE 1

OVERVIEW OF WRITING TASKS

Task	Topic	Directions Given	Product
First	Informative Composition	Everyone is a teacher. You act that role many times a day. Describe something that you know more about than anyone else in class.	First Expository Composition
Second	Choosing One's Own Parents	Expand or comment on the following quote: "When I was about 5 or 6, I decided that one of life's greatest injustices was not being able to choose your own parents."	Second Expository Composition
Third	Mistaken Identity	Compose an original, humorous anecdote which is based upon a case of mistaken identity. Clarify the mistaken identity only in the last line of the story, thus creating a surprise ending.	Narrative Composition
Fourth	Free Choice of Topic	Write a composition on any topic of your choice	Free Choice Composition

TABLE 1

OVERVIEW OF WRITING TASKS
(continued)

Fifth	School Language Arts assignment: Homemade Monster (Ashif)	Language Arts teacher's directions: Write a composition in which you describe in detail a monster, either of your invention, or of someone else's creation or invention.	Descriptive Composition
	School Language Arts assignment: Letter to NASA (Wesley)	Language Arts teacher's directions: Write a letter to NASA, describing your feelings about the January 28, 1986 U.S. Challenger Shuttle explosion.	Letter to NASA
Sixth	School Social Studies assignment: Pygmy Report	Social Studies teacher's directions: Write a detailed report on the Pygmy civilization. Place special emphasis on their way of life.	Social Studies Report

At the completion of each task, the following directions were given to the student concerning retrospective comment on the composition:

> I would like you to take a look at these various drafts that have been printed during your composing process. I want you to try and go back over what you were thinking while you made the revisions in your writing. I want you to tell me everything you can remember about doing this writing. Do you have any questions?

Any questions raised by the student were answered. Comments and discussion were recorded on audiotape, transcribed, and verified by the students.

Two weeks following the sixth meeting, a final interview with each student was conducted. The purposes of this interview were to gain further insight into the student's understanding of writing and to determine if any changes had occurred since the pre-study interview. Special attention was given to students' comments on views and understanding of "revision". These interviews were also audiotaped, transcribed, and verified by the students.

Six compositions were written by each student on the word processor. Four of these were directed by the researcher, one by the language arts teacher, and one by the social studies teacher. Copies of the compositions are included as Appendix F.

Personal Data on Students

In addition to data gathered while students revised on word processors, data was collected on both students to

provide background information and give insight into the total context of their writing. This data was acquired from interviews with the students' teachers and parents, as well as from school records. The researcher was also able to gain further insight into the students during the course of the individual meetings.

Interviews with Teachers

Interviews were held with the students' teachers in all core areas. These interviews were held during the course of the study when the teachers were available. The teachers provided background information on the students as assessed by them during their daily contacts with the students. Information obtained from these interviews was used in building profiles of the student writers.

The questions asked in the interviews with teachers are included as Appendix B.

Interviews with Parents

Interviews were held with both parents of the students. The purpose of these interviews was to gain insight and additional information on the student's general development in reading and writing, their current reading and writing habits, and possible influences of media, hobbies, interests and personal experience on their writing.

Although these interviews were informal, a general questioning guide was followed. This guide is included as Appendix C.

Examination of School Records

The school records provided such information as Canada Achievement Test scores, as well as personal details of date of birth and record of schools attended. Core subject term grades were also released for the researcher's use.

Procedures for Data Analyses

Data gathered in the study were of two main types: 1) data on the revision processes of subjects utilizing word processors; and 2) personal data.

Both types of data were used in creating partial case studies of the two student writers. The analyses focused on the data on the revision process while utilizing word processors. Personal data was collected on both students to provide background information on them in order to better understand their compositions and their retrospective comments.

This section outlines the development of a Category System of Revision as identified by the researcher while the student writers composed on the word processor. This Category System of Revision is examined against the profiles of both student writers in Chapter V. Each Category is defined with supporting examples. The procedures followed in categorizing the students' revisions are described.

The compositions and interviews were analyzed for use in creating the student writer profiles. The methods used for analyses of these data are also described.

Analyses of Retrospective Comment

The Category System of Revision was developed to classify the students' revisions. This system was built as a result of the examination of the transcripts of comment made by the students based on viewing the printed process drafts.

Transcripts were made of all comment of the student writers and discussion between the student and researcher after viewing the printed process drafts. The transcripts were then verified by the students. Sample transcriptions of retrospective comments are included as Appendix D.

The Category System of Revision was developed to categorize the results of the examination of transcripts and printed process drafts. Comments made by the student writers which referred to common concerns or stages in the compositions were noted.

As indicated earlier in this chapter, process drafts of each composition were printed whenever the student writer paused in his composing process (generally about two to three times during a composition). The researcher was conscious not to interrupt the composing process, and thus always inquired if the student objected to having the writing printed in process. (Both students were eager to see how their writing "looked on paper".)

From the examinations of printed process drafts and retrospective comments, the categories for the various types of revision evolved. At the completion of each written product, the researcher identified the revisions made and

then categorized them under the Category System of Revision. These revisions were then tabled as shown in Tables 2 and 3. The Category System of Revision is outlined below:

Category System of Revision

Content

Under Content are classified revisions in such areas as thought, controlling idea or purpose, development of ideas, use of specific information, and use of relevant material.

Organization

Under Organization are classified revisions in such areas as unification and coherence of thought, effectiveness of order (introduction, development, conclusion), individual development of paragraphs, and the clear progression of ideas.

Style

Under Style are classified revisions in such areas as sentence length and type, and selection of words, structure, and transitional devices.

Mechanics

Under Mechanics are classified revisions in such areas as grammar usage, spelling, and punctuation.

This Category System of Revision was used to identify and categorize the individual revisions made by the students in the process drafts. For example, in the first draft of "Tennis: A Hobby", Ashif made the statement that tennis is a "one-on-one game". He had deleted this statement by the time the second draft was printed. In his retrospective comments the reason he gave for doing this was:

> Tennis is not necessarily a one-on-one game, because it can also be played with double players on each team.

Under the Category System of Revision, this revision was classified under Content because the statement was deleted to clearly define the student's ideas.

The first draft of "Letter to NASA" written by Wesley contained only one paragraph. In his subsequent drafts, to create a more effective order, he organized his thoughts into developed paragraphs. In his retrospective comments the reason he gave for doing this was:

> It made more sense and also looked better to split up my ideas into paragraphs. It looked more organized.

Under the Category System of Revision, this revision was classified under Organization because Wesley organized his letter into an introductory paragraph, developmental paragraph, and concluding paragraph.

In the first draft of "Mistaken Identity", Ashif wrote the following sentence:

> One day, a long time ago, I was at home with the flu. I was sneezing and coughing. My throat was so sore that I could not speak.

In his subsequent drafts, he made the following revision

> One day, a long time ago, I was at home with the flu, feeling very miserable. I was sneezing, coughing, and my throat was so sore that I could not speak.

In his retrospective comments, the reason he gave for doing this was:

> I wanted to choose words that were more appropriate, that said what I wanted to say. The changes I made seemed to fit better and flow better.

Under the Category System of Revision, this revision was classified under Style because Ashif chose words to achieve special emphasis and varied sentence structure by compounding the second sentence.

In the first draft of the "Pygmy Report", Wesley wrote the following sentences:

> The pygmies have remained unchanged for about 6000 years. They have made little contact with any other civilization except a near by village where they get most of their weapons and harvested food.

In his subsequent drafts he made the following revisions:

> The Pygmies have remained unchanged for about 6000 years. They have made little contact with other civilizations except with a nearby village from where they receive most of their weapons and harvested food.

Under the Category System of Revision, these revisions were classified under Mechanics because they dealt with proper grammar usage and correct spelling.

Verification of the Category System of Revision Induced from Data

The Category System of Revision was derived inductively from examination of all process drafts. The Category System of Revision was referred to two language arts teachers from the subjects' school, together with samples of process drafts of the data from which it was derived. The two teachers were asked to classify the revisions of one of the compositions under the Category System of Revision to determine if any discrepancy existed between their classification and the researcher's. The teachers concluded that the categories were broad enough to include all types of revision, and found no discrepancies in the categorization.

Analyses of Pre-Study and Post-Study Interviews with Subjects

The pre-study and post-study interviews with each student were designed to obtain comparative insight into the students' general conception of writing as influenced by the use of the word processor, and also to obtain their views on the procedures used in the study. The responses of each student were recorded and are reported in the individual profiles. The questions asked in the interviews with teachers are included as Appendix E.

The focus of this study was to try to understand the effects of word processors on the writing process. Thus the students were asked to examine the final products in relation to the processes involved in their production. During the analyses of retrospective comment, reference was made to the product, and the Category System of Revision referred to by the student.

Quantitative analyses was made in terms of totaling the number of revisions made within each category. A classification of the percentage of revisions in each category is presented in Chapter IV.

It was not the purpose of this study to make comparisions between the two subjects with respect to writing process. Length of compositions and times of writing of each student are presented and discussed in the individual profiles.

Summary

This study was designed to examine the composing processes employed by two grade seven competent writers as they completed six composition tasks on the word processor. Two male students were selected as subjects. The subjects were recommended by the administration and teachers of a public junior high school in the Edmonton area as suitable for this study. Four of the six composition tasks were initiated by the researcher, one by the language arts teacher, and one by the social studies teacher. The topics included expository, narrative, and descriptive compositions, as well as a social studies report. All the writing was done at the homes of the two students with the researcher present. Retrospective insight into the students' composing processes on the word processor was made possible through students commenting while viewing the process drafts that were printed at various times during the composing process. Personal data on the students was obtained through interviews with teachers, parents, and from school records.

Analyses were made of all retrospective data and printed process drafts. A Category System of Revision was developed inductively from examination of the transcripts of both students' retrospective comments on six writing tasks. The Category System of Revision included four main categories - Content, Organization, Style and Mechanics. These categories were used to identify and categorize the various types of revisions made by the students.

The Category System of Revision was verified by two language arts teachers from the subjects' school.

Written products were analyzed and the quantitative data obtained was used in interpreting the effects of the word processor on the writing process and building profiles of the two student writers.

Pre-study and post-study interviews were analyzed. Answers to questions related to the students' conception of writing and the effects of the use of the word processor on their writing were also used in the profiles.

Chapter IV

ANALYSIS OF DATA

Overview

Analyses of retrospective comments and evaluations of printed process drafts revealed a variety of concerns considered by the two grade seven competent writers as they composed their stories. In this study profiles of the two writers were prepared using an analyses of individual comment. The analyses revealed the overall concerns of each writer in composing six compositions on the word processor. An examination of each composition, with reference to comments made by the writers following the writing, provided insight into the nature of their composing processes.

The profiles in this chapter are presented in the following way:

First, a brief biographical sketch is given. This sketch is based upon material gathered from school records and from interviews with teachers and parents.

Secondly, the results of the Category System of Revision are presented and briefly discussed.

Thirdly, the writing of each of the six stories is examined. The retrospective comments of the student writer form the main part of this examination.

Fourthly, an analyses is made of the pre-study and post-study interviews to obtain comparative insight into the students' general conception of writing as influenced by the

word processor.

Finally, a summary of the general nature of the composing processes of the two writers in the six compositions is made.

The compositions written by each student are included in Appendix F; and are ordered in the same sequence as that followed in the presentation of profiles. Ashif's compositions are followed by Wesley's compositions. The compositions are discussed in the following order: First Expository Composition (Informative Composition), Second Expository Composition (Choosing One's Own Parents), Narrative Composition (Mistaken Identity), Free Choice Composition, Language Arts Assignment, and Social Studies Report (The Pygmy Report).

Ashif

Biographical Sketch

Ashif is the only child in his family. His father is a Project Manager of an engineering firm, and his mother is a legal secretary. The family lives in a townhouse in the city of St. Albert.

Both parents, and Ashif himself, were born in Kenya, Africa. The family immigrated to Canada when Ashif was a baby.

At the time of the study Ashif was 12 years old. This is Ashif's first year at the junior high school. Prior to

entering this particular school, Ashif attended a local public elementary school from grades 1 to 6.

School records indicate that Ashif is an above average student in all subject areas.

Ashif has a different teacher for each of his core subjects: language arts, social studies, math and science. The options that he enrolled in this year are environmental education and French. The general consensus among his teachers is that Ashif is a "very hard working, organized student and a high achiever". He has earned "Honors with Distinction" certificates each term of this school year.

Concerning Ashif's writing, his language arts teacher commented,

> Ashif is very precise in his written work. He makes conscious attempts to utilize a thesaurus to find the exact word to express what he wants to say. He has good organizational skills. His written work is always neatly typed and generally error-free when he hands it in.

At the conclusion of the study Ashif's social studies teacher remarked that he was very impressed with the quality of Ashif's "Pygmy Report", particularly in the areas of order and logical development.

Ashif's parents recalled that he displayed an interest in books and writing from an early age, and mastered reading very quickly and easily. Concerning Ashif's present reading habits, his mother remarked,

> He now picks up magazines to read, rather than books. We have to prod him to read books. He reads magazines on tennis and cars. The books he does read are mystery-type books.

Ashif's parents stressed that they always read everything that Ashif writes for school. They prefer taking an active part in their son's education. They remarked that during holidays, they encourage Ashif to write compositions based on topics they provide. Ashif's father claims that "this helps us to know what his thoughts are on certain issues." Although Ashif did little self-initiated writing prior to this study, they felt that as a result of their direction, he has done a fair amount of writing.

Ashif's parents carefully restrict his television viewing. They encourage him to spend his free time reading and pursuing other interests such as cooking. Movies play a small part in Ashif's life, and the family wishes to make an effort to attend more live theatre.

The family has travelled to Kenya since their immigration. Travels have also included the western United States.

Ashif is a clear and eager speaker. His parents indicated that they frequently engage in family discussions on current world and national issues.

Ashif's father noted the following at the conclusion of the study:

> I think that using the word processor to compose has a lot of usefullness...in making corrections...in half the amount of time which is certainly better...it's easier...Ash doesn't get frustrated and he's motivated...and in being so he has been able to put in a little more effort...I think it's worked out very well. I'm all for it. I am really impressed with what he has done. I don't spent that much time on the system myself. I dictate onto a tape, but before I do that, I have to gather my

> thoughts and put some points on paper before I start relating to that. Some of his reports...like his Pygmy Report, I couldn't have done when I was his age.

Added Ashif's mother,

> Also, he has learned a new technique of writing. That makes it interesting for him.

Analyses of the Category System of Revision

50% of Ash's revisions were in the Category of Mechanics (grammar, spelling, and punctuation). Most of these revisions were made in the social studies Pygmy Report. This was to be expected, as the Pygmy Report was longer and much more detailed than his other compositions. 30% of Ashif's revisions were in the Category of Style, 19% in the Category of Content, and 1% in the Category of Organization. A clarification of the percentage of revisions made by Ashif in each category is presented as Table 2 at the close of this chapter.

Ashif accounted for his high number of revisions in the Category of Mechanics by stating that:

> When I think fast, I make a lot of silly mistakes. I don't really worry about them, because I know that I can go back and change them.

The researcher also noted that many revisions in this area were of simple spelling errors.

The revisions made in the Category of Style, however, were more carefully thought out. As indicated by Ash:

> I thought of different ways to say the same thing so it sounds more formal or the way I want it to sound. I spent more time on trying out different words and phrases.

The revisions made in individual compositions will be discussed in the following section.

Analyses of the Compositions

First Expository Composition: Informative Composition

Based on the premise that everyone is a teacher, for the first composition, each student was asked to describe something that he knew more about than anyone else in his class. Ashif chose to write about his hobby: tennis. Ashif made more revisions in the Category of Style in this composition than in any of the other categories. These revisions included the following:

> Original: Tennis is a very exciting sport. It is very important to me.
> Revised: Tennis is a very exciting sport. It is very important to me because I enjoy it very much. It is a great recreational sport.

Ashif claims to have made these revisions "mainly for length." He stated that he wanted to "expand more in the introduction".

In the second paragraph, these revisions were made:

> Original: Tennis is a very popular sport. It is one of the main sports played in England and the United States. It is a one-on-one game.
> Revised: Tennis is a very popular sport. It is played all over the world. It is especially played in England and the United States.

Ashif claims that these revisions in content were made to make the statement "clearer", and that he deleted the last statement because "it was a false statement".

In the third paragraph, the words "at least" were deleted from the final sentence because "it was too repetitious, and so not as effective".

> Original: However, he or she has to win by at least two matches, otherwise the set continues until somebody wins by at least two matches.
> Revised: However, he or she has to win by at least two matches, otherwise the set continues until someone does.

The majority of revisions in the Category of Style were made in the fourth and fifth paragraph. The revisions indicated a more precise, distinctive selection of words. Ashif stated:

> I just wanted to make it clearer by changing the words. Some of the meanings in these sentences were confusing.

These revisions included the following:

> Original: There are many ways and surfaces to play tennis on and with. There is the singles tennis. This style of tennis is played on a one-on-one basis. Then ther is doubles tennis. This is where two people play on a team against two other people. There is also mixed-doubles tennis. This is where a man and a woman play together as a team.
>
> The main surfaces tennis is played on are: grass courts; clay courts; and hard courts which are made up of cement. Wimbledon, the most famous tennis tournament in the world is played on grass courts. Clay courts are mainly located in indoor tournaments. Cement courts are usually local courts that are practically everywhere.
>
> Revised: There are many ways to play tennis. For example, there is the singles tennis. This style is played on a one-on-one basis. Then there is doubles tennis. This is where a team of two people compete against another team. There is also mixed-doubles tennis. This is where a team of a man and a woman compete against a similar team.
>
> There are also many different surfaces on which to play tennis on. These include: grass-courts; clay-courts; and hard courts which are made up of cement. Wimbledon, the most famous tennis tournament in the world, is played on grass-courts. Clay-courts are mainly located in indoor courts. Cement courts

are usually found in residential areas.

Ashif also inserted a sixth developmental paragraph before his concluding paragraph. This insertion was categorized under the Category of Content:

> There are many professional tennis players around the world. Some of these famous people are: Martina Navratilova (my favorite player); John McEnroe; Chris Evert Lloyd; Ivan Lendl; and Jimmy Connors.

He felt that it was "important to include the names of a few famous tennis players in a composition on tennis". He stated that this insertion was not only "interesting", but also "added to the length of the composition".

One final revision was made in this composition:

> Original: To conclude this composition, tennis is a very exciting sport.
> Revised: To conclude this composition, in my opinion, tennis is a very exciting sport.

Ashif felt that the original statement was too much of a generalization, stating that:

> Not everyone might agree that tennis is a very exciting sport...that is my opinion;

hence, the revision.

Second Expository Composition: Choosing One's Own Parents

For the second composition task, Ashif was asked to expand or comment on the quote: "When I was 5 or 6 I decided that one of life's greatest injustices was not being able to choose your own parents".

Ashif made very few revisions in this composition. Again the majority of his revisions dealt with minor

mechanical errors such as the following:

> Original: My mom hardly ever buys me anything for me when we go shopping.
> Revised: My mom hardly ever buys anything for me when we go shopping.

Ashif felt that he had "rushed through" writing the original statement, therefore overlooking his mistake.

> It wasn't important to correct right away, because I knew I would go back to it,

he stated.

He felt also that he had "rushed through" the following statement, thereby forgetting "to keep the same tense in the sentence".

> Original: When we went shopping I would want her to buy me all the toys I wanted.
> Revised: When we would go shopping I would want her to buy me all the toys I wanted.

One revision in the Category of Content was made in this composition with the addition of the following statements to the third paragraph:

> I would like him to help me collect stamps for my stamp collection. We could also play computer games together.

Ashif stated that this composition "was fun to do". He claimed that he kept the language simple to purposefully "think and write like a five-year old", and added that "it was a nice change".

Narrative Composition: Mistaken Identity

For the third composition, Ashif was asked to compose an original, humorous anecdote based upon a case of mistaken

identity. Ashif made only two very minor mechanical revisions in this composition. The majority of revisions made in this composition fell under the Category of Style and the Category of Content.

The stylistic revisions he made included the following:

Original: One day, a long time ago, I was at home with the flu. I was sneezing and coughing. My throat was so sore that I could not speak.
Revised: One day, a long time ago, I was at home with the flu, feeling very miserable. I was sneezing, coughing, and my throat was so sore that I could not speak.

Original: I took hundreds of cold relievers: Tylenol, Panadol, Dristan, and Vitamin 'C'.
Revised: I swallowed many cold relievers: Tylenol, Panadol, Dristan, and Vitamin C.

Original: None of these pills worked, so I finally decided to go to a doctor.
Revised: None of these pills seemed to have any effect, so I finally decided to go to a doctor.

Original: I was new to this city so I looked up a doctor under the Yellow Pages.
Revised: Being new to this city, I looked up a doctor under the Yellow Pages.

Original: I called up his office to make an appointmen.t
Revised: I called his office to schedule an appointment for that afternoon.

Original: When the doctor came I explained to him my problems.
Revised: When the doctor came I explained to him all of my problems.

Original: I told him about all the pills I took, and that I stayed in bed all week.
Revised: I told him about all the pills I had taken, and explained that I had remained in bed all week.

Original: Then I stomped out of his office.
Revised: I then proceeded to stomp out of his office.

Ashif stated that these revisions were made mainly for

clarity:

> I wanted to choose words that were more appropriate, that said what I wanted to say. The changes I made seemed to fit better and flow better.

The revisions that Ashif made in the Category of Content included the following:

> Original: When I arrived at the office I went in straight to the secretary who then showed me in.
> Revised: When I arrived at the doctor's office, the receptionist showed me to his examining room.
>
> Original: I got so frustrated that I argued with the doctor about why he did not know anything.
> Revised: I became so frustrated that I yelled at him because he appeared to not know anything about medicine.

Ashif chose to add a final paragraph to this composition. He felt that this was necessary to "reveal the mistaken identity, in case someone didn't get it".

Free Choice Composition

Ashif chose the topic, "Volador--An Aztec Sport" for this composition. The majority of his revisions in this composition were in the Category of Mechanics, specifically, punctuation and spelling. He stated that he was not overly concerned about these revisions initially because "they were easy to change".

One of the two content changes he made was inserting the phrase "in his mud-brick house" in the sentence:

> One day an Aztec craftsman was sitting at home (in his mud-brick house) with his wife.

Ashif felt that this phrase was "more interesting".

In the second content change he inserted the sentence:

> This sport is very symbolic of the Aztec ways and beliefs,

in the final paragraph of the composition.

The first of two Category of Style revisions made in this composition included the following:

> Original:" I will give you until tonight to pay, or you will be punished with thorns and be putt into slavery", threatened the tax collector and he left.
> Revised: "I will give you until tonight to pay, or you will be punished with thorns and be put into slavery", threatened the tax collector as he was leaving.

Ashif felt that the revision was much more effective because "it's like the tax collector said it while he was in the process of leaving".

The second style revision was:

> Original: This is where the Aztecs got the idea for their game.
> Revised: This is where the Aztecs received their inspiration for their sport.

Ashif felt that this revision "sounded better...more

Language Arts Assignment: Descriptive Composition

Ashif made more content revisions in this composition than in the others. They included the following:

> Original: As I was pearing through the bushes, the monster never before seen by man, I saw it was asleep.
> Revised: As I was peering through the bushes at the monster possibly never before seen by man, I saw that it was asleep in what appeared to be its home.

He claimed that as he "did not want to make the generalization that it had never before been seen by man...'possibly' was good to use there".

He also added more specific information by inserting the sentence:

> It was nestled in its enormous bird-like nest in a clearing in the forest...The ground beneath me began to tremble. Ashif stated that these sentences were added because they were "descriptive".

Other content revisions he made included:

> Original: This monster was a large creature. He was almost twenty meters tall He weighed about two tonnes.
> Revised: This monster was a large creature. It was almost two stories tall and weighed about two tonnes.

He felt that this comparison was easier to visualize. He also deleted the sentence:

> The legs of this incredible beast were thicker than a house,

because it was "too childish" a statement.

The Category of Style revisions that Ashif made in this composition included the following:

> Original: The monster jumped to life.
> Revised: The monster immediately jumped to life.

> Original: However, his tail was only three meters in length.
> Revised: His tail was only three meters in length.

> Original: The beast trotted over to the monkey carcass and started feasting.
> Revised: The beast trotted over to the monkey carcass and began feasting.

An organizational revision was also made in this composition. Ashif deleted the first sentence, "It seemed as though he was hungry", in the fourth paragraph, and inserted the following as the last sentence in the paragraph:

> Perhaps it was not as frightened as it was hungry.

He felt that this shift "sounded like a natural

progression". He also chose to leave an extra line before the final paragraph to "give it separate emphasis".

Once again the majority of revisions in this composition were mechanical, specifically spelling and punctuation.

Social Studies Report: The Pygmy Report

The final writing task in this study involved a social studies report on the Pygmy civilization.

The revisions in this writing task involved mainly Mechanics and Style, although conscious changes were also made in Content. The revisions which involved Style included the following:

> Original: This type of house, which is the only type of house known to the Pygmies, takes only one to two to make, yet it can stand for about two months.
> Revised: This type of house, which is the only type of house known to the Pygmies, takes only one to two hours to constuct, yet it can stand for about two months.
>
> Original: It is very warm, so they feel they do not need any other clothing.
> Revised: The climate is very warm, so they feel they do not need any other clothing.
>
> Original: They migrate to allow food not to become scarce in one area.
> Revised: They migrate before food becomes too scarce in one area.

Ashif felt that these Category of Style revisions helped to clarify his ideas. "The words became more effective," he stated.

The final draft of this report included the addition of one entire section: "Elephant Hunt". Ashif included this

particular section because he felt that it was "important to make the section complete...it gave more information on the Pygmy lifestyle".

The final draft of this report also included a table of contents as well as a glossary "to make it look more professional".

Analyses of the Pre-Study and Post-Study Interviews

In the pre-study interview, Ashif indicated that he enjoyed writing, although he does little outside of what is required for school. He particularly enjoys creative types of writing:

> I like writing poems and fictional stuff because I don't have to go look up facts and stuff.

In writing compositions, he stated that he had the most difficulty in writing introductions, and creating appropriate titles. In contrast, he found developmental paragraphs the easiest to compose.

When asked what he thought made a good composition and what was involved in writing a good composition, he responded:

> You've got to have good skills, think properly, and be able to keep your mind on the subject. You've got to have good grammar, formal words...You've got to be able to spell well and use good punctuation...But to write well, you've got to be in a good setting. I like listening to music when I write my compositions.

He goes about the process of writing a composition by

> ...thinking about it for a few minutes. Then, after I've thought about what my essay is going to be about, I put my ideas on paper, form them into

> sentences, then into paragraphs. Then I put my paragraphs into order...then I think of a conclusion, introduction, and title. I place my weakest ideas first in a paragraph, then a strong idea, then my weaker ones...so most of the excitement is in the middle. I like to vary the boring and exciting parts.

Ashif stated that he does employ some form of self-evaluation before he hands in a composition:

> I read over and check the spelling, punctuation, grammar and informal words. My Dad evaluates my ideas and tells me whether they're good or not. My Mom is a legal secretary, so she knows a lot of stuff. She checks for spelling and punctuation.

Ashif understood the term "revision" to mean: "...going over and checking for mistakes". He added:

> When I start writing my essay, I give my mind a break for a few minutes, and read over what I've written. If it sounds good, I leave it. If it's really bad, I get rid of it, or add better things to it.

As he was about to embark upon the study he remarked:

> I think that this is a good study. It helps people like Wesley and I to get involved. I never knew what a word processor was before. My mother uses it, but I never watched her. I think this study will be a really good advantage to us.

In the post-study interview, Ashif remarked on the benefits that he experienced with composing on the word processor:

> I have more confidence in making changes now. By typing I was reluctant to add anything. Now I can double-space without pressing the return bar. It's so easy to delete what you don't want, and insert what you want...I've made more changes in writing on the word processor, because I knew I wouldn't have to do it all over again...It's a good way of writing...you can make a lot of changes, and do a lot of things to make your writing come alive...Writing is fun. I enjoy using the computer. I enjoyed writing before, but not as much.

Although Ashif identified several advantages to utilizing the word processor in writing his compositions, he felt that being able to "change paragraph order, do bold titles and italics" were the best advantages.

He also cited one disadvantage: "It takes longer to type than write."

Of the writing tasks completed for this study, he indicated that he found the first expository composition on "Tennis" the most difficult to compose because "I had to think a lot". He preferred the writing tasks where the general topic was assigned because he "could stick to one thing and not change (his) mind".

Regarding his attitudes to revision, he felt that revising more helped him to "get better marks". He also added that he now uses computer terminology when speaking about revision:

> I use words like delete, insert, and format now when I talk about writing. I didn't use them before.

He stated that he found the word processor particularly useful in writing his social studies report because, "it was a lot of information, and I could compile it easier". In conclusion he added:

> I would like to see a couple of computers in the classroom. I think they would help everyone.

Summary

Ashif considered his social studies report on the Pygmy civilization to be his best effort during the study. He found it much easier to do "report writing" on the computer than with pen and paper. Although Ashif's stories varied in length, he appeared to put a great deal of effort into each of his writing tasks. He enjoyed the language arts assignment "Homemade Monster" the best because "It was creative writing". Ashif's retrospective comments were specific and relevant. He seemed satisfied with the tasks he completed for the study and was quite eager to discuss the thought processes involved in his writing.

Wesley

Biographical Sketch

Wesley is the second of three children. He has an older brother and a younger sister. His father is a Security Investigator for a telephone company, and his mother is a homemaker. The family lives in a single family home in the city of St. Albert. Both parents, and Wesley himself, are Canadian born.

At the time of the study Wesley was 12 years old. This is Wesley's first year at the junior high school. Prior to entering this particular school, Wesley had attended a local public elementary school from grades 1 to 6.

School records indicate that Wesley is an above average student in all subject areas.

Like Ashif, Wesley has a different teacher for each of his core subjects: language arts, social studies, math, and science. The options that he enrolled in this year are environmental education and French. The general consensus among his teachers is that Wesley is a "conscientious, responsible student, and a high achiever". He has earned "honors" certificates during the course of this school year.

Concerning Wesley's writing, his language arts teacher commented,

> Wesley is a very creative writer. He uses his imagination well. He has good command of the English vocabulary, and his grammar usage is good. His written work is often typed, and he takes pride in what he hands in.

Wesley's parents recalled that he attempted to write and enjoyed reading at an early age. They recall several incidents in kindergarten when Wesley would sit on his teacher's knee and read to the class. Concerning Wesley's present reading habits his mother remarked,

> He needs to be encouraged to read. He does not read voluntarily. We try to encourage him to sign out library books.

Wesley's parents stressed also that they generally read his writing before it is presented to the teacher. As well, they frequently engage in open discusions with their children, and encourage independent thinking.

Wesley's parents impose some restrictions on his television viewing. His free time is often spent with his Commodore 64. The family views movies mainly at home on their video cassette recorder. They are careful to choose movies that are acceptable for family viewing.

The family's travels mainly include the province of British Columbia where they visit grandparents during the summer vacations.

Wesley's parents have been generally pleased with his progress in school.

Wesley's father noted the following at the conclusion of the study:

> The pressure to operate the word processor and become familiar with it has been good. Wesley writes very easily, very readily, without any coaching now. It has been of benefit to him. I just recently approached Wes to encourage him to write for publication. I receive the Alberta Authors' Bulletin, and they have various opportunities for publication that I would like to see him attempt to

> undertake...The word processor is a marvelous time saver. There is just nothing like it...not since sliced bread.

Added Wesley's mother:

> On the whole it has been a good experience for him. He's gained a lot of valuable knowledge.

Analyses of the Category System of Revision

51.3% of Wesley's revisions were in the Category of Mechanics (grammar, spelling, and punctuation). The majority of these revisions were made in the Social Studies Pygmy Report. This was expected, as the Pygmy Report was longer and much more detailed than his other compositions. 40.3% of Wesley's revisions were in the Category of Style, 0.8% in the Category of Content, and 7.6% in the Category of Organization.

Wesley accounted for his high number of revisions in the Category of Mechanics by saying that,

> A lot of those changes were typos, because when you type fast, and you're thinking at the same time when you're writing, it's easy to make lots of mistakes.

Wesley indicated that the revisions made in the other categories, particularly in the Category of Style, were revisions that he spent more time with:

> When I was changing the wording in a phrase or sentence, or when I would delete some things, I thought about it a lot more, because it always changed the way the composition sounded.

When questioned regarding his relatively low revision rate in Content (0.8%), Wesley provided the following explanation:

> I don't have much trouble in deciding what I want to say usually. I usually know what I want to say...I mainly have problems with how I want to say it. After I've thought about a composition for a while the ideas just come, and I usually like them, so I keep them.

The revisions made in individual compositions will be discussed in the following section.

Analyses of the Compositions

First Expository Composition: Informative Composition

Like Ashif, for his first composition Wesley was asked to describe something that he knew more about than anyone else in class. He chose to write about the Siamese cat because the family possesses one as a pet.

51.3% of Wesley's revisions in this composition were classified under the Category of Mechanics, and 40.3% were classified under the Category of Style. The revisions in the Category of Mechanics were mainly typing, spelling, and punctuation errors. A clarification of the percentage of revisions made by Wesley in each category is presented as Table 3 at the close of this chapter.

The revisions in the Category of Style included the following:

> Original: It has very interesting charecteristics.
> Revised: It has many interesting characteristics
>
> Original: Some of these are: it's very slender body;

it's unique voice; it's very pretty colors; and some of it's strange habits.
Revised: Some of these characteristics include: it's slender body, unique voice, pretty colors, and strange habits.

Original: I will start with the Siamese's color (because it is it's best charicteristic).
Revised: I will begin with the Siamese Cats color (because it is it's best characteristic).

Original: The Siamese comes in many diffrerent colrs. Some of these colrs are: chocolate brown; red; cream; white; and black.
Revised: The Siamese comes in many different colors. Some of these colors include: chocolate brown; red; cream; white; and black.

Original: The colors of the Seal point Siamese, in my opinion, are the prettiest. This type has a chocolate brown face, tail, feet and sometimes stomach.
Revised: The colors of the Seal Point Siamese in my opinion, are the prettiest. This type has a chocolate brown face, tail, feet and sometimes even a chocolate brown stripe on it's stomach.

Original: All Siamese have a very snake-like head and body. This is one of the charecteristic that makes them special.
Revised: All Siamese cats have snake-like heads and bodies. This is one of the many characteristics that makes them special.

Original: The Siamese has a very special voice.
Revised: Siamese cats have a very special voice.

Original: Some people dislike it very much because it is considered very rough and irritateing.
Revised: Some people dislike it very much because it is considered quite rough and irritating.

Original: This breed of cat has many special habits and facts about it.
Revised: This breed of cat has many special habits and facts concerning it.

Original: They were first given to the King of Siam was given asorted Siamese cats and he bred them and sold them to others. The cats were named after their original country and that is how they came to be known as Siamese cats.
Revised: Assorted Siamese cats were given to the King of Siam who bred and sold them. The cats were

named after their original country - Siam (now known as Thailand), and that is how they came to be known as Siamese cats

Wesley's main concern in these revisions was choosing precise, distinctive, words to describe what he wished to say:

I wanted to pick good words. I had to think about making sense with the words. I wanted to choose the right words so that the reader would be clear and not confused.

Second Expository Composition: Choosing One's Own Parents

For the second composition, Wesley was asked to expand or comment on the quote: "when I was 5 or 6 I decided that one of life's greatest injustices was not being able to choose your own parents."

In comparison to the other compositions, very few revisions were made in this composition; however, the revisions that were made were divided equally between the Category of Mechanics and the Category of Style.

The revisions in the Category of Style included the following:

Original: Every day it was "clean up your room!" or something like that.
Revised: Every day it was "clean up your room!", "It's past your bedtime" or something similar.

Original: I had wished I could have choosen the parents I wanted. Parents that would let you do anything you wanted; sleep all day or stay home from school.
Revised: I wished that it could have been possible to have choosen the parents I wanted...parents that

would let you do anything you wanted; sleep all day or stay home from school.

Original: I went through a nightly routine of getting into my pyjamas and doing my teeth.
Revised: I went through a nightly routine of getting into my pyjamas and brushing my teeth.

Original: I was shaken up every morning by my mother or bigger brother and I wished that they were dead.
Revised: I was shaken awake every morning by my mother or bigger brother, and I wished that they were dead.

Original: I liked it when I was young in this way. I could watch the television set unless I was bad and I never got homework, but often I wished that I had the right to chose my own parents.
Revised: In some ways, I enjoyed being 5 or 6...I could watch the television set unless I was bad, and I never got any homework. I often wish though that I had the opportunity to choose my own parents.

In his retrospective comments Wesley claimed that he found this particular composition difficult to write. However, the revisions he made were mainly to clarify his points as well as to better express his thoughts:

> This was hard to write because I couldn't think of much to write. That's why it's short. It's hard trying to think like a five or six year old...The changes I made were so that the words were more better suited for what I was saying. They also sounded better.

Narrative Composition: Mistaken Identity

For the third composition, Wesley was asked to compose an original, humorous anecdote based upon a case of mistaken identity. Again, the revisions made in this composition were divided between the Category of Mechanics and the Category of Style. The revisions in the Category of Mechanics

included mainly spelling errors and punctuation corrections. The revisions in the Category of Style included the following:

> Original: One day while I was jogging down the street reading my daily newspaper and listening to my headset, I was suddenly tripped into a manhole that I did not know was in my path.
> Revised: One day while I was jogging down the street reading my daily newspaper and listening to my headset, I suddenly tripped into a manhole that I did not know was in my path.
>
> Original: As I landed I felt an awful pain in my leg. I tried to get up, and when I did I looked down with fright and saw my leg hanging by the skin.
> Revised: As I landed, I felt a throbing pain in my leg. I tried to steady myself, and when I did, I looked down with fright and saw my leg dangling by the skin.
>
> Original: I was sat down at a table and was turned to face a short man in a suit and tie.
> Revised: I was seated down at a table and turned to face a short man in a suit and tie.
>
> Original:: "This isn't the one!"
> Revised: "This isn't the one!" he shouted.
>
> Original: These people were looking for a Mugsy Rock and I had been taken hostage because of a mistaken identity!
> Revised: These people were looking for someone named Mugsy Rock, and I had been taken hostage because of a mistaken identity!

Wesley claims that the majority of revisions made in this composition were for the purposes of adding variety and achieving special emphasis:

> I changed the words around because I didn't want it to be boring. I wanted to make the words stand out by themselves so that they would be more effective. I also wanted to surprise the reader sort of.

Free Choice Composition

Wesley chose the topic of Halley's Comet for this composition because of his interest in this subject which had been generated by his father who is a collector of information on the subject. Wesley spent little time contemplating what to write he said, because he had wanted to write on this topic for some time, but the opportunity had never availed itself.

Once again the revisions made in this composition were divided between the Category of Mechanics and the Category of Style. The revisions in the Category of Mechanics included typing errors, spelling errors and punctuation corrections.

The revisions in the Category of Style included the following:

> Original: It is called Halley's Comet because of the man who predicted it's return.
> Revised: It is named Halley's Comet after the man who predicted it's return.
>
> Original: Edmond Hally was an Astrologer who lived in England. He saw the comet travel past the earth and predicted its return 76 years later and then again 76 more years later and so on.
> Revised: Edmond Halley was an Astrologer who lived in England. He saw the comet travel past the earth and predicted it's return every 76 years.
>
> Original: Of course by the time it came back Mr. Halley was dead.
> Revised: Of course by the time it returned, Mr. Halley was dead.
>
> Original: In commemoration of him the comet was named after him and this is why it is known as Halley's Comet.
> Revised: In commemoration, of him the comet was named after him.

Original: Five space probes have been sent to meet with the Comet.
Revised: Five space probes have been sent to rendezvous with the comet.

This was one of Wesley's most enjoyable compositions. The few revisions he made he felt were to further clarify points as well as to add variety:

I liked doing this composition a lot. The changes I made in this one were mainly to make clearer sense and for change generally.

Language Arts Assignment: Letter to NASA

Following the January 28, 1986 tragedy of the United States Challenger space shuttle explosion, as a Language Arts assignment, Wesley was required to write a letter to NASA describing his feelings about the incident. His letter, along with the other letters written by his classmates were then mailed to NASA. The impact of knowing that his letter would be read by "important people" at NASA appeared to give Wesley the added incentive of writing for an audience other than his language arts teacher or the researcher of this study.

In contrast to his other compositions, Wesley made very few revisions in the Category of Mechanics in this letter. His revisions were mainly divided between the Category of Style and the Category of Organization. Wesley set the following revisions apart as separate paragraphs, and the researcher classified them under the Category of Organization.

Original: My name is Wesley --------- and I am a grade 7 student at ---------- Junior High School in St. Albert, Alberta and I thought you might be interested to know how a regular civilian feels about what happened to the space shuttle Challenger on Tuesday, January 28, 1986.
Revised: My name is Wesley --------- and I am a grade 7 student at ---------- Junior High School in St. Albert, Alberta, Canada. I felt that you would be interested to know how a regular civilian feels about what happened to the space shuttle Challenger on Tuesday, January 2, 1986.

Original: It was a very misfortunate accident and I was sorry to hear about it. I feel that space exploration should be continued and also feel that the astronauts that died would feel the same way.
Revised: It was a very tragic malfunction and I was saddened to hear about it. I feel that space exploration should be continued regardless of this tragedy. I am certain that the astronauts who perished dedicating their time and effort to this mission would feel the same way.

Original: The future of many kids around the world depends upon what becomes of accidents like this.
Revised: The future of many children around the world depends upon what becomes of accidents like this. What is important is that we learn from this tragic event so that we can do everything possible to prevent it from occuring again.

Original: When I came home from school that day I was amazed at what had happened and I had hoped that there would be something good from it. I was sorry to hear that all 7 people had died but I feel that it was a good idea to finally send a civilian up.
Revised: When I came home from school that day I was shocked at what had happened and I hoped that something good would come from all of it. I was distressed to hear that all seven astronauts had died. I do however feel that it was a good idea to finally send a citizen passenger to space. The chances for civilians to travel in space is approaching more rapidly.

Original: I hope that you will keep on trying and that something good comes out of this misfortunate experience.
Revised: I hope that you will continue in your space exploration efforts and that we can all learn from this terrible tragedy. I feel that you are doing an excellent job in space exploration and I would like

you to know that you have my complete support.

Once again Wesley felt that the revisions he made in this letter were mainly to achieve special emphasis by selecting precise, distinctive words. He was quite pleased with the final product, and considered it one of his better works:

> I wanted to make this letter sound formal because it was going to NASA. I tried to pick words that sounded more formal. I think I did pretty good in this one. I liked the changes that I made.

Social Studies Report: The Pygmy Report

The final writing task in this study involved a Social Sudies report on the Pygmy civilization. The revisions in this report were in the Categories of Mechanics, Style, and Organization. The revisions made in the Category of Mechanics were mainly corrections of spelling and punctuation errors. The revisions made in the Category of Style were as follows:

> Original: The pygmies have remained unchanged for about 6000 years. They have made little contact with any other civilization exept a near by village where they get most of their weapons and harvested food.
> Revised: The Pygmies have remained unchanged for about 6000 years. They have made little contact with other civilizations except with a nearby village from where they receive most of their weapons and harvested food.

> Original: The groups population has remained at about 40 000 for 6000 years. This is because the pygmies do not allow outsiders to join the group.
> Revised: The group population has remained at about 40 000 for approximately the past 6000 years. This is because the pygmies do not allow outsiders to join the group.

Original: The pygmies appearance is quite serious.
Revised: The appearance of the pygmies is quite serious.

Original: The groups homeland is located in Zaire in the Ituri Forest.
Revised: The homeland of the Pygmies is located in Zaire in the Ituri Forest.

Original: In the groups' homeland there are sections where the people may build their huts. They are generally set in a circle but it is not the law.
Revised: In the group's homeland there are sections where the people may build their huts. They are generally set in a circle but this is not a law.

Original: The terrain in the Ituri is very rough. They live in a forest do not regularly leave it. Being in a rain forest it is generally quite damp and the temperature is usually quite hot.
Revised: The terrain in the Ituri is very rough. They live in a forest and do not regularly leave it. The rain forest is generally quite damp and the temperature is usually quite hot.

Original: The way they preserve and cook their meat is to smoke it over a fire, and to dry the plants.
Revised: They preserve and cook their meat by smoking it over a fire, and they also dry the plants.

Original: Every family has a hut to live in. The floors are covered with Mongongo leave mats and this is what they sleep on and sit on.
Revised: Every family has a hut to live in. The floors are covered with Mongongo leaf mats and this is what they sleep and sit on.

Wesley's main purpose for these revisions was to formalize his writing by presenting the information in as factual a way as possible. He says he wanted to "straighten up" a few things to accomplish this:

> Because this is a report, and not a composition assignment, I wanted to really be clear in what I was saying. Most of this report - or probably all of it - is just facts. I think that it's important to make sure that the facts are accurate and that you've explained them well. That's mainly why I made these changes.

In his final draft Wesley added a few organizational changes. These included the addition of a conclusion, as well as a table of contents. A title page and the inclusion of a few maps, made the report complete. In his retrospective comments Wesley added the following:

> I added a separate conclusion and a table of contents because I wanted it to look more formal...more like a report. That was easy to do on the word processor.

Analyses of the Pre-Study and Post-Study Interviews

In the pre-study interview Wesley indicated that he generally enjoyed writing, particularly the compositions that involved the less serious themes. His thoughts on effective writing included the following:

> I think that if a composition has a good plot to it and if the person writing it has good skills then it's probably going to be pretty good...I also think that the way you word things...like using formal language is important...It's kind of hard to explain...Like my favorite author is C.S. Lewis, and I like the way he writes. I don't know why, but I do. He writes good adventure stories. The one I'm reading now is called: The Lion, The Witch and The Wardrobe. I really like it because it's full of adventure and action.

Wesley indicated that he often found it difficult to begin a piece of writing. However, once that obstacle was overcome, the rest tended to "come along". Upon completion of a composition assignment he generally shared his writing with his mother, who checked it for correct grammar, spelling and punctuation.

Wesley understood the word "revision" to mean: "checking for punctuation and spelling", and added:

> Once in while when I'm finished, I'll look at the words I've used and try to improve the wording...but not that often.

When asked how he felt about participating in this study and writing on the computer, he commented:

> Well, I think it's better than writing, although you might lose some of your printing and writing skills if you use a word processor too much...I think it's easier because you don't have to keep writing out the composition time after time...I'm glad you picked me because I like doing something different from the rest of my class. It's kind of fun to do something different from what the rest of my class is doing in composition class.

In the post-study interview Wesley made the following comments:

> My writing is better now. If I couldn't use the word processor anymore I would be discouraged in writing. Overall I write better. The writing I do is more specific. With the word processor I can go back and change it instead of re-writing the whole thing...In the writing I've done for this study, I've made a lot of changes, before I would mainly just write it once and that would be it. It's easier to make changes and write better. I don't just look at punctuation and spelling; I look at word order and whether what I'm saying is what I really want to say or if there is a better way to say it.

Summary

Wesley considered his NASA letter and his social studies report on the Pygmy civilization to be his best efforts during the course of the study. Like Ashif, he found it much easier to do "report writing" on the computer than with pen and paper. Even though Wesley's stories varied in length, he appeared to put a great deal of effort into each of his writing tasks. His retrospective comments were

specific and relevant. He seemed satisfied with the tasks he completed for the study and was quite eager to discuss the thought processes involved in his writing.

TABLE 2

CATEGORY SYSTEM OF REVISION
COMPOSITIONS WRITTEN BY ASHIF

	Content	Organization	Style	Mechanics
First Expository Composition	3	2	11	4
Second Expository Composition	1	-	-	3
Narrative Composition	3	-	9	2
Free Choice Composition	2	-	2	9
Descriptive Composition	6	1	3	13
Social Studies Report	1) inclusion of one chapter 2) Table of contents 3) glossary	-	3	16
TOTAL REVISIONS	19%	1%	30%	50%

TABLE 3

CATEGORY SYSTEM OF REVISION
COMPOSITIONS WRITTEN BY WESLEY

	Content	Organization	Style	Mechanics
First Expository Composition	-	-	12	14
Second Expository Composition	1	1	5	5
Narrative Composition	-	-	6	5
Free Choice Composition	-	-	6	9
Letter to NASA	-	4	12	1
Social Studies	-	4	7	27
TOTAL REVISIONS	0.8%	7.6%	40.3%	51.3%

Chapter V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Overview

In this final chapter, the study is summarized. Findings and conclusions are presented in the form of answers to the research questions asked. Implications for teaching identified in the study are discussed, and recommendations are made for further research.

Summary of the Study

Purpose

The purpose of the study was to contribute to our understanding of how students revise on word processors. The study sought to identify the ways in which word processors assisted in revising and improving written compositions, the benefits or problems apparent, the insights into the composing process attainable from the retrospective comments of the students, the extent to which students revised in the major areas of content, organization, style, and mechanics, as well as to determine the attitudes of the students and the quality of their work while utilizing the word processor. The study also sought to gain insight into the conception of writing held by grade seven competent writers.

Methodology

The researcher met individually with each subject at his home six times over a period of two months. Six composition tasks were performed by each student. The assignments were written as home assignments with the researcher present. Written topic descriptions were given to the students to initiate writing.

Data gathered were of two main types - data on the revision process while utilizing word processors, and personal data. Data on the revision process while utilizing word processors included both the subject's retrospective comment on the writing, (obtained by having the subject review the printed drafts and comment on the thought and editing processes in each of the compositions), and the researcher's own observations. Personal data consisted of transcripts of interviews with teachers, with parents, with the subjects themselves, as well as information obtained from school records.

Procedures for Data Analyses

The subjects were found to revise in the major areas of content, organization, style, and mechanics, although the amount of revisions under each category varied between subjects. The written products were analyzed in terms of the types and frequencies of revisions made. Profiles of each student were built based upon interaction with the writers, analyses of their comments, analyses of the written

products, and personal data obtained from interviews and school records.

Findings and Conclusions

This study was limited in that only two subjects were studied while composing six tasks over twelve weeks. All the compositions were written in the home setting where the retrospective analyses of printed process drafts aided in the search for answers to specific questions related to composing with the assistance of word processors. It is therefore not possible to generalize beyond the limits inherent within the study. However, certain conclusions can be drawn concerning the composing processes of the subjects, the benefits and problems of composing with the aid of word processors, and the conception of writing held by the grade seven competent writers. The conclusions are exhibited in the form of answers to the research questions with which the study was concerned. An additional conclusion concerning the backgrounds of the two students was also reached.

1. In what ways do word processors assist in revising and improving written compositions?

As categorized under the Category System of Revision, the majority of revisions made by the students were classified under the Categories of Mechanics and Style. The retrospective comments of the students indicated that these revisions were made as a result of the speed and ease with

which the word processor assisted in making them. As well, an additional advantage noted by the students was how quickly and accurately they could note the effect that major changes in the Category of Style in particular, had on the text by merely comparing it to an earlier process draft or by viewing the change instantly on the screen. The students' ability to delete, replace, move, or insert text without affecting what had already been written was clearly identified as an incentive to experiment with additional revisions in Content, Organization, Style, and Mechanics.

2. What benefits or problems are apparent?

The most pronounced benefit reported by the students was the ability to make quick changes and judgements during the composing process. If a certain desired word or phrase escaped the students, they often explored a variety of possibilities in parentheses within the text. The less appropriate words were deleted when the desired word was found. Sometimes the students experimented with a variety of ways of phrasing a certain point and then deleted all but the desired phrase. When ideas that would have been more appropriate earlier in the text were discovered, both students easily positioned the cursor to the point where the change was desired, made the necessary addition, and then proceeded with the composing.

It was in the Category of Style that both students made the most significant revisions. It was here that they

experimented with a variety of words and phrases to add meaning and achieve special emphasis by selecting precise, distinctive words and phrases. It was also here that they explored the imaginative and artistic use of the language by adding more details, by clarifying statements, and by deleting unconnected statements. Clearly the word processor aided in making these cumbersome tasks simple.

Once the first draft was printed, and the students were able to visualize the hard copy of their composition, they were able to focus on the product in process and make additional changes. Upon returning to the screen, both students made further revisions, adding or deleting phrases or sentences, or changing their position. They explored different ways of wording their ideas, contemplating the effect of their wording and frequently deleted what appeared to be unrelated material. If they found the changes unsuitable, they returned to their original statements.

As well, the process of editing on the word processor appeared much less cumbersome than editing with the traditional tools of pen and paper for both students. They quite willingly and self-reliantly corrected their mechanical errors in spelling, punctuation and sentence structure. Accuracy in editing became much more attainable with the aid of the word processor.

The most pleasurable benefit identified by both students was the speed with which fresh, clean copies of their composition were delivered. The time saved in

recopying and revising with pen and paper or typewriter and correction fluid became clearly apparent to the students upon viewing the final printed draft.

Although no serious problems confronted the students during the course of the study, both students were still discovering the complete uses of the word processor, even though they were familiarized earlier with the general workings of this writing tool. It was through practice that the students continued to learn to utilize the full capabilities of the word processor. By the time of their last writing task, the Pygmy Report, both students had learned to utilize the majority of the editing capabilities of the word processor, although they were still not completely comfortable with shifting large parts of text.

Both students had keyboard experience prior to the study, as they had frequently completed school assignments on the typewriter. Certainly, being relatively competent keyboard users aided their ability to utilize the word processor as well.

It may be concluded that the word processor provided a valuable writing aid for the students as it assisted them significantly with the revision and editing processes.

3. <u>What insights into the composing process can be attained from the retrospective comments of these student writers?</u>

A common theme that arose with both students in their retrospective comment was the difficulty involved in finding

the right word or phrase to express or describe a particular point. While searching for words to define these details, the students found it particularly useful to check for the appropriateness of each possibility before deciding on the final word or phrase to employ. The word processor assisted them in selecting details for their composition.

It proved difficult for the researcher to identify a single composing process that was employed by both writers. Both Ashif and Wesley used different methods of composing. Ashif sometimes used a divergent approach in his writing, exploring various possibilities, and moving in different directions; while Wesley sometimes employed the convergent approach of narrowing larger ideas to more detailed counterparts. The students' retrospective comments indicated that the way they engaged in a particular writing process depended on the type of task as well as their frame of mind while composing.

It may be concluded that retrospective comment of the student writers provided valuable insight for the researcher into determining areas which the students considered significant to revise. The researcher also came to the conclusion that these writers did not follow the same writing stages consistently. The process followed was unique to the individual writer.

4. <u>What conception of writing is held by these grade seven competent writers? Does this conception change because of</u>

the use of word processors?

The pre-study interviews conducted with both students revealed that prior to the study, neither student did much revising. The students appeared to associate revision with proof-reading. As indicated by Wesley,

> I think revision means looking over your composition, and making sure you have no spelling mistakes and the right punctuation.

and by Ashif,

> Revision means going over and checking for mistakes.

Both students generally enjoyed the writing that was required of them for school assignments, but did little independent writing outside school, although Ashif's parents encouraged some independent writing, particularly during holidays.

Wesley and Ashif identified finding descriptive words and "starting off" as the most challenging areas of composing. Both indicated that they wanted their compositions to "come together" with the first draft, and that they rarely retyped or recopied a composition for the purpose of revising.

In the post-study interviews conducted with both students, it was clear that their definition of revision had undergone a metamorphosis of sorts. Both now viewed revision as a process that was on-going throughout the composing process. As stated by Ashif:

> I've learned to change words and sentences as I write. I can make more decisions about what I want to say...using the word processor is a good way of writing, you can make a lot of changes and do a lot

of things to make your writing come alive.

It may be concluded that the student writers at the close of the study understood revision to mean not only the process of reading over and correcting, but also the process of changing and amending while still composing.

5. To what extent do students revise in the major areas (such as content, organization, style, and mechanics)?

Fifty percent of Ashif's revisions were classified under Mechanics. These included correcting errors in spelling, grammar, punctuation, and typing. 30% of Ashif's revisions were under Style. These included varying sentence lengths and types to achieve special emphasis; selecting precise, distinctive words; choosing effective structure and explicit transitions, as well as imaginative and artistic use of language. 19% of his revisions were under Content, and 1% under Organization.

51.3% of Wesley's revisions were classified under Mechanics; 40.3% under Style; 7.6% under Organization; and 0.8% under Content.

Thus the majority of the revisions fell under the Category of Mechanics and the Category of Style. Within the Category of Mechanics, most of the changes made were corrections of typing errors. However, it was under the Category of Style that both students made the most significant changes. It was here that they explored a variety of words and phrases in parenthesis within the text

until the most appropriate word or phrase was found.

Even after the first drafts were printed, the students focused on the product in process, making additional revisions in the Category of Style as they deemed necessary.

It may be concluded that the majority of revisions demonstrated by the students fell under Mechanics and Style, and that the most significant compositional revisions occurred in Style.

The low rate of Content revisions appears to exist because the students focused on how to say something, rather than on what to say.

6. Do the attitudes of the students and the quality of their work change while utilizing word processors?

A comparison of the results of the pre-study and post-study interviews, as well as comparisions of compositions completed prior to the study with compositions completed during the study, were used as a basis for determining the answers to this research question. The comparisions revealed that both students experienced an expanded vision of the concept of revision, viewing it as an on-going process in an individual composition. Their attitudes towards the revision and editing process appeared more pleasurable. Statements made in the post-study interview included such comments as:

> Writing is fun. I enjoy using the computer. I enjoyed writing before, but not as much. (Ashif)

and,

> My writing is better now. If I couldn't use the word processor anymore, I would be discouraged in writing. (Wesley)

As judged by the language arts teacher, the quality of writing completed prior to the study, compared with the quality of writing completed during the study showed some change in quality:

> The students' writing completed for the study demonstrated more thoroughness, more attention to details, and more clarifications.

The social studies teacher noted significant advances in quality in the final writing task: the Pygmy Report. He felt that the material was presented in an "orderly, logical fashion", and was impressed with the "completeness of the report".

It may be concluded that both students experienced an improvement in the quality of their work with the aid of the word processor; and that this improvement increased their motivation and desire to write, making the task more enjoyable for them.

Implications for Teaching

The grade seven students who took part in the study were competent writers. The way in which they completed the six writing tasks with the aid of the word processor has implications for the teaching of the more proficient writers at this level. However, what was discovered of the writing processes of competent grade seven writers as they composed on the word processor may also have implications for the

teaching of writing generally.

Although it requires time for students to become accustomed to composing on the computer, this study indicates that word processors have positive implications for the teaching of writing.

A common problem faced by language arts teachers is the reluctance of students to critique and self-evaluate the first draft. Students frequently expect the initial draft to be the final and only effort. This often indicates that little attention, if any, is given to organization or selection of words and phrases. The composing process requires the student to make changes while paying close attention to the structure and organization of the composition.

The grade seven writers who took part in this study found the word processor to be an effective tool for composing. Their writing process became recursive rather than linear. As a result of the ease with which the students could insert and delete their thoughts and ideas at various points in their composition, they were not preoccupied with just completing the composition, but changing and perfecting it. This proved to ease their frustration when they felt something required amendment or change.

Although this was a case study, the researcher believes that the experiences of the two grade seven students involved in this study can be applied to other students at the junior high level. Ashif and Wesley felt that the

advantages of composing with the aid of word processors were significant enough to want to continue composing all their written assignments on the computer. Since it is generally believed that writing practice improves writing, the use of the word processor has the potential for motivating and encouraging students to practice writing more liberally. This in turn has the potential for allowing student writers to continually focus on developing and nurturing their writing ability.

If as teachers of writing we are concerned about developing our students' writing abilities, then it is worthwhile to invest the time and effort required in obtaining computers and word processing programs so that students may have access to them in the language arts classroom. Since "literacy" has traditionally been identified as the domain of the language arts/English teacher, it is even more crucial to evaluate the implications of computer technology on literary skills. It is the responsibility of writing teachers to educate students in the uses of computers as writing tools.

Recommendations for Research

This study identified some of the major areas of revision attempted by grade seven competent writers as they utilized word processors in the production of six writing tasks. Because of the personal nature of the writing process, more studies of individual writers composing with

the aid of the word processor will assist in understanding and defining the complex act of composing more clearly.

The possibilities for further research as suggested by this study are numerous. Variations of the procedures employed in this study could be pursued in further studies. As well, focus could be placed upon subjects of different ages and ability levels.

The following are examples of questions for further study:

1. Will computers simply replace the typewriter as an easier copy preparer, or will they influence the way that we think about the composing process?
2. How does writing with computer affect writing quality?
3. Are computers helpful for writers doing all types of writing, or are there situations in which the pen and pencil or typewriter are just as efficient or better?
4. Does interacting with machines such as the computer stifle or enhance creativity?
5. How often and for what purposes are computers used in the writing classroom?
6. Are the benefits of using the computer for writing and writing instruction worth the complication and expense?
7. How much, and what types of pre-planning and pre-writing are initiated by the student writer as he begins to compose with the aid of the word processor?

Concluding Statement

This study of the revision processes of two grade seven competent writers in the performance of six writing tasks completed with the aid of the word processor, proved to be a valuable study for the students and researcher involved. Through learning to master the word processor, the students discovered that they had more time and energy for composing, evaluating, and critiquing their texts. The computer succeeded in providing more writing strength to the students; but despite this new power, the onus still remained on the writer to determine what to say, and how to say it. Although students continue to use pen and paper because of easy portability and managability, the computer has succeeded in reserving its space on their desks.

There are new and interesting possibilities for using the word processor in the composition class. The opportunity for new breakthroughs in the composing process is before us. Teachers must now have the courage to take on this exciting challenge.

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APPENDIX A

THE PILOT STUDY

Appendix A. The Pilot Study

The Pilot Study

The pilot study was conducted in a junior high school in the separate school system of the city of St. Albert in January, 1985.

Purposes

The purposes of the pilot study were to throw light upon:

1. The suitability of grade seven competent writers as subjects for a study of writing processes utilizing the word processor.
2. The usefulness of obtaining retrospective comments on writing process with reference to printed process drafts.
3. The assignment of writing tasks suitable for gaining insight into composing processes while utilizing the word processor.

Subjects

Two grade seven students, one girl and one boy were selected as subjects. The students were judged by the school administration and grade seven teachers to be "competent" writers at the grade seven level, clear and fluent speakers, and willing, co-operative students. Also, the availability of a home computer was also essential to the selection of

subjects.

Procedures

Each student was met with individually by the researcher at the school. The students were told that the researcher wanted to find out all she could abouut how grade seven students compose while utilizing the word processor. The researcher explained that she would be present as the student composed on the word processor, and that the students would be asked questions about their writing processes after the writing task.

The students were asked to write two expository compositions, one narrative composition, one descriptive composition, and one free choice composition. These tasks were completed at the homes of the students.

At the conclusion of the writing tasks, the students were prompted to present their retrospective comments on their writing with visual reference to the printed process drafts. The students' comments and dialogue between the students and researcher were recorded on audiotape, and later transcribed.

Results

The performance of the pilot study revealed the following information related to its purposes:

1. The two students were able to compose on the word processor with the researcher present without being

excessively uncomfortable. Hence, grade seven comppetent writers were considered to be suitable subjects for a study of writing processes utilizing the word processor.

2. The printed process drafts proved to be a very useful means of prompting retrospective comments on the writing tasks. Both students were able to make much retrospective comment on their composing.
3. The assigned writing tasks were found to be suitable for gaining insight into composing processes while utilizing the word processor. However, to further vary the types of writing completed by the students, the researcher concluded that a social studies report should also be included as one of the tasks.

Summary

The pilot study indicated that insight into the composing processes of students utilizing the word processor could be gained by a study of the retrospective comments of the students prompted by the printed process drafts, as well as by analyses of the written products. The design of the actual study was based upon the information gained in the pilot study.

APPENDIX B

INTERVIEW WITH TEACHERS

Appendix B. Interview With Teachers

The researcher met with the language arts teacher and the social studies teacher of the grade seven students. Both students were taught by the same teachers. Interviews were held with the teachers for the purpose of gaining background information on the students. The main emphasis in the interviews was upon the students' writing performance. Other relevant information was also discussed.

Prior to the interview, the researcher briefly outlined to the teachers the purpose of the interview. The researcher clarified questions regarding the study, and presented a guide of general questions to prompt the discussion. This guide is included as part of this appendix.

The interview was recorded on audiotape, transcribed, and verified by the teachers. This data was used to build profiles of both students.

Interview with Teachers

Writing

1. What are your comments on the student's writing ability?
2. Do you have any indication that the student's writing is influenced by media, reading interest, personal experiences etc.?
3. What is your opinion of the compositions that this student has completed for this study compared to what he normally writes in school?

Reading

1. What are your comments on the student's reading ability?
2. Does he read voluntarily?
3. Do you have to encourage him to read?
4. Does he have any specific reading interests that you are aware of?

Speaking and Listening

1. What are your comments on the student's oral language ability?
2. Does the student actively participate in class discussions, debates, etc.?
3. What are your comments on the student's listening abilities?

General

1. Is there anything additional regarding the student's composing processes that you would like to add which may be helpful in acquiring a complete picture of the student's writing?
2. Do you have any general comments on the student?

APPENDIX C

INTERVIEW WITH PARENTS

Appendix C. Interview With Parents

Prior to the commencement of the study, letters were sent by the researcher to parents of both students. The general nature and purpose of the study was outlined, and permission sought for the students to participate in it.

Both sets of parents enthusiastically consented to their child participating in the study. The parents also consented to being interviewed regarding their child's language development.

The interviews were of an informal nature, and took place after the completion of the study. The researcher presented a guide of general questions to prompt the discussion. This guide is included as part of this appendix.

The interviews were recorded on audiotape and transcribed. This data was used to build profiles of both students.

Interview with Parents

Writing

1. Did your child attempt to write at an early age?
2. Can you recall any of these early attempts?
3. Did you encourage your child to write before he entered school?
4. Did he encounter any problems in learning to write at school?
5. What are his grades like in language arts?

6. Has your child encountered any difficulties in any of the language arts areas?
7. Are you aware of any writing that your child does at home other than for school assignments?
8. Does he show you some of the written work he does at school?
9. Do you ever assist him with his writing?
10. Have you noticed any changes in your child's writing since this study commenced?

Reading

1. Could your child read before he entered school?
2. Did he have a desire to read before he entered school?
3. How quickly did he grasp learning to read?
4. Did he encounter any difficulties as he was learning to read?
5. Did you read to him when he was young?
6. Did he enjoy books, pictures, printing and drawing when he was younger?
7. What were his elementary grades like in reading?
8. Does he voluntarily read now?
9. What types of reading material does he enjoy?
10. How does he acquire his reading material?
11. Are there any reading materials which you do not allow him to read?

Speaking

1. Can you recall your child's first words?
2. Was he an early speaker?
3. Did he ever encounter any speech difficulties?
4. What is his verbal expression like now?
5. Do you engage in discussions with your son at home?

Listening and Viewing

1. How much television does your child watch?
2. Do you impose any restrictions on his television viewing in terms of time allotment or programs?
3. What are your feelings regarding the influence of television on children?
4. Does your child attend movies?
5. Do you have any restrictions on what types of movies he may view?
6. Does he attend live theatrical performances?
7. Does he listen to radio, records or tapes?

Other Academic Areas

1. Are you satisfied with your child's general performance in school?
2. Does he do well in all subjects?
3. Have you noticed any difficulties that he has encountered?

4. Is there anything that you would like to add about his performance at school?

General

1. Is your child involved in any extra-curricular activities? (Sports? Hobbies?)
2. Have you done any travelling with your child?
3. Did your child have any experiences in life which you feel may have significantly affected him?
4. Do you have any general remarks that you would like to make regarding the effects of this study on your child?
5. Is there anything more that you would like to add to assist me in understanding his writing processes better?

APPENDIX D

SAMPLE TRANSCRIPTIONS OF RETROSPECTIVE COMMENT

Appendix D. Sample Transcriptions of Retrospective Comment

Ashif: First Expository Composition: Informative Composition
9/ 1/ 86 - Tape 1/Side 1

R: Okay Ashif, let's take a look at your process drafts on "Tennis". The first change you made was in changing the spelling of your title: "Hobbie" to "Hobby". Do you recall what prompted you to do that?

A: Yeah - I wasn't too sure about the spelling. I looked it up in the dictionary to correct it. I do that a lot.

R: Can you tell me why you added this additional phrase and sentence to the first paragraph?

A: Um, I wanted to explain why tennis is very important to me. I also wanted to expand more in the introduction.

A: In the second paragraph, I wanted to make the sentence clearer...because tennis is played all over the world, even though mostly in England and the United States. And saying that it is a "one-on-one game" - well, it was a false statement.

A: In the third paragraph, I deleted "at least" because I thought it sounded too repetitious, and so not as effective. I didn't like the way it sounded.

A: I made most of my changes in the fourth and fifth paragraphs because I just wanted to make it clearer by changing the words. Some of the meanings in these sentences were confusing. I really liked the way it sounded when I read it after I made the changes.

A: I added a paragraph about famous tennis players before the conclusion because I thought it was important to include the names of a few famous tennis players in a composition on tennis. I think that this made the composition more interesting. It also added to the length of the composition.

A: In the last change I made I added "in my opinion", because I thought that not everyone might agree that tennis is a very exciting sport - some people don't like it at all - but that is my opinion.

Wesley: First Expository Composition: Informative Composition 25/1/86 - Tape 2/Side 1

R: OKay Wes, in this composition on the Siamese Cat, can you go through and explain to me why you made the changes you did?

W: Well, in the first change, I thought the word "many" sounded more formal than the word "very".

W: In the second change, I repeated the word "characteristics" and inserted "include" because it sounded logical. And I figured "it's" was repeated too much too.

W: The next change was...let's see... oh yeah..."begin" sounds a lot more formal than "start" I thought.

W: (Giggling) I spelled "color" wrong here. I didn't realize it at the time...but I looked it up afterwards because it didn't look quite right. I changed "are" to "include" here because I liked it a lot better.

W: This change is funny the way it sounds...I said: "This type has a chocolate brown face, tail, feet and sometimes stomach." - Well (giggling), that sounds like sometimes the Siamese Cat doesn't have a stomach What I meant to say was that it sometimes has a chocolate brown stripe on it's

stomach. I didn't think that I explained how the name "Siamese" originated very well here. That's why when I looked over the draft, I changed it. I think that the way I changed it makes a lot more sense. Mostly in this composition, I wanted to pick good words. I had to think about making sense with the words. I wanted to choose the right words so that the reader would be clear and not confused. I really liked the way that the final copy turned out.

APPENDIX E

PRE-STUDY AND POST-STUDY INTERVIEWS WITH STUDENTS

Appendix E. Pre-Study and Post-Study Interviews with Students

Prior to the commencement of the study, interviews were held with both students to gain insight into their general conception of writing prior to contact with the word processor. The following questions were asked at the interviews:

1. How do you feel about writing in general?
2. Do you enjoy writing?
3. When your teacher gives you a composition assignment, how do you go about it?
4. What do you think makes a good composition?
5. What is involved in writing a good composition?
6. How do you go about organizing the ideas in your composition?
7. What do you find difficult/easy about writing?
8. Do you do any type of self-evaluation before handing in your compositions to your teacher? Proof-reading?
9. Does anyone else read your compositions before you hand them in to your teacher?
10. Do you do any writing outside school?
11. Do you know what the word "revise" means?
12. What sort of things do you do when you revise?
13. How do you feel about participating in this study?
14. How do you feel about using the word processor to compose?
15. How do you think the word processor will affect the

quality of your writing?

After the completion of the final writing task, a post-study interview was held with both students. The purpose of this interview was to gain comparative insight into the students' general conception of writing as influenced by utilizing the word processor. The following questions were asked at this interview:

1. Has your writing changed as a result of using the word processor?
2. Has the quality of your work changed?
3. How do you feel about your writing now?
4. Do you feel more confident about writing?
5. Did you find it difficult to compose when I asked you to?
6. Did you prefer the times when topics were given to you to choosing your own topic?
7. How do you feel about each of the different kinds of writing you did for me?
8. Is there anything else you would like to say about what you have written for me or about your writing in general?

Thank-you for participating so willingly in this study. Your comments and your compositions helped me to understand a lot more about writing. I hope that this experience has been fun for you, and I hope that you will keep up your enthusiastic writing efforts.

The interviews were recorded on audiotape, transcribed, and verified by the students. The data obtained was used in building profiles of both students.

APPENDIX F

THE COMPOSITIONS

TENNIS: A Hobby
by: ASHIF

Tennis is a very exciting sport. It is very important to me because I enjoy it very much. It is a great recreational sport.

Tennis is a very popular sport. It is played all over the world. It is especially played in England and the United States.

Tennis has a unique way of score evaluating. It uses sets and matches. There are usually five sets or less in a mens' tournament. The womens' tournament usually has three or less sets. A set is a group of matches won by either opponent. The person with six matches in a set wins that set. However, he or she has to win by at least two matches, otherwise the set continues until someone does.

There are many ways to play tennis. For examole,there is the singles tennis. This style is played on a one-on-one basis. Then there is doubles tennis. This is where a team of two people compete against another team. There is also mixed- doubles tennis. This is where a team of a man and a woman compete against a similar team.

There are also many different surfaces on which to play tennis on. These include: grass-courts; clay-courts; and hard courts which are made up of cement. Wimbledon, the most famous tennis tournament in the world, is played on grass-courts. Clay-courts are mainly located in indoor courts. Cement courts are usually found in residential areas.

There are many professional tennis players around the world. Some of these famous people are: Martina Navratilova (my favorite player); John McEnroe; Chris Evert Lloyd; Ivan Lendl; and Jimmy Connors.

To conclude this composition, in my opinion, tennis is a very exciting sport. It is very popular around the world and I recommend it highly to anyone who enjoys outdoor, summer sports!

I STILL LOVE THEM...

HI! My name is Georgie Walters. I am five and a half years old. My parents are not very nice parents. My mom hardly ever buys anything for me when we go shopping. She always looks at the ladies' clothing stores, and sometimes she even buys a dress or two. Watching television and sleeping is all my dad does when he comes home from work. He never lets me watch Sesame Street or Mr. Dress-Up.

If I could have a new mother I would be very happy. I would want her to be kind and very generous. I would want her to bring home presents for me everyday. When we would go shopping I would want her to buy me all the toys I wanted. I would also like her to make lots of cookies, especially chocolate chip cookies!

If I could have a new father, I would want him to be full of energy. He could then play with me everyday. He could teach me how to play baseball and football. I would like him to help me collect stamps for my stamp collection. We could also play computer games together. I could then watch all of the kiddie shows that I like!

It would be very nice to have parents such as these. However, you cannot have everything that you want. I guess I am still stuck with my old parents...but I still love them, a lot!

MISTAKEN IDENTITY

One day, a long time ago, I was at home with the flu, feeling very miserable. I was sneezing, coughing, and my throat was so sore that I could not speak. I swallowed many cold relievers: Tylenol, Panadol, Dristan, and Vitamin 'C'. None of these pills seemed to have any effect, so I finally decided to go to a doctor.

Being new to the city, I looked up a doctor under the Yellow Pages. I found a doctor -Dr.I Cure-All- who had an office just down my street. I called his office to schedule an appointment for that afternoon. I then got into my car and drove over to his office.

When I arrived at the doctor's office, the receptionist showed me to his examining room. When the doctor came I explained to him all of my problems. I told him about all the pills I had taken, and explained that I had remained in bed all week.

When I had finished my explanation, I glanced at the doctor who appeared to have a puzzled look on his face. I asked him what was wrong.

"Why did you come here?" he asked.

"I have a flu and I came here to be cured," I said impatiently.

Now the doctor really looked as though he did not know what I was saying. I became so frustrated that I yelled at him because he appeared to not know anything about medicine. I then proceeded to stomp out of his office. Just as I was leaving, I noticed a brass plate on the doctor's door. On it, written in italics, was the following:

Dr. I Cure-All,Ph.b,Ph.d

I then realized why this man did not know what I was talking about. This man had a Bachelor of Philosophy degree as well as a Doctor of Philosophy degree. He was a professional psychiatrist, not a physician or medical doctor!

VOLADOR

An Aztec Sport

-legend created by: ASHIF

One day an Aztec craftsman was sitting at home in his mud-brick house with his wife.

"Our taxes are due today," said the craftsman to his wife ,"and we have hardly recieved any business at all!"

"Oh no," cried the wife ,"we will then have to sell ourselves to slavery!"

Suddenly, the tax collector boated up to their chinampa*.

"Your tax of seven cocoa beans is now over due by three moons," the tax collector bellowed.

"The tax is not overdue," complained the craftsman,"and we do not have it. Please give us some more time, for you see, we have not had any business."

"I will give you until tonight to pay, or you will be punished with thorns and be put into slavery," threatened the tax collector as he was leaving.

Later that evening, the craftsman had still not recieved any business. Therefore, the tax collector arrived with King Montezuma to take the craftsman away. As they were leaving the chinampa, four eagle-men of the Aztec god, QUETZALCOATL, soared down.

"Return that man to his home. He has not done anything wrong," ordered the largest of the eagle-men.

"The tax collector, QUANKAZUKI, has told me that this craftsman has not paid his tax for over three moons and therefore, he must be punished," squealed King Montezuma.

"He lies! QUANKAZUKI must be punished for his untruthful deed!" the eagle-men sang out.

King Montezuma did as he was told. He feared that the god, QUETZALCOATL, would punish him severly if he disobeyed.

This is where the Aztecs recieved their inspiration for their sport. The name of the sport came from the craftsman's name, Volador. This sport is very symbolic of the Aztec ways and beliefs. Four Aztec men swing around the Volador pole, dressed in eagle suits. This represents the four eagle-men of QUETZALCOATL that glided down to rescue the craftsman for being punished for no reason.

chinampa*: a minature floating island that has one house and a garden built on it. It is made of layers of dirt, rocks, sand, and human dung.

One day I, Dr.Z Discovery, an anthropologist, was walking through the forests of Central America when I discovered an extremely terrifying monster.

As I was peering through the bushes at the monster possibly never before seen by man, I saw that it was asleep in what appeared to be its home. It was nestled in its enormous bird-like nest in a clearing in the forest. Suddenly, my earthquake detector indicated a quake approaching. The ground beneath me began to tremble. The monster immediately jumped to life. It roared so loud I almost went deaf!

This monster was a large creature. It was almost two stories tall and weighed about two tonnes. It had purple scales and firey red eyes. His tail was only three meters in length. It had elephant size ears which were blue. It walked on all ten of its legs.

It appeared frightned as it stumbled around. Suddenly my glasses shattered- I heard a scream from a monkey-- and then silence. The beast trotted over to the monkey carcass and began feasting. Perhaps it was not as frightned as it was hungry.

Meanwhile, my earthquake machine picked the inaudible sounds that killed the monkey and shattered my glasses. I was fascinated!

I took some photographs of this magnificent creature to show my family and to share with the scientific world. However, to my disappointment the film was overexposed in the radar baggage check! Now no one will ever believe my story!

The Children of the Ituni Forest

Asnif

PYGMIES OF THE ITURI FOREST:
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PYGMIES OF THE ITURI FOREST: CHAPTER I
CULTURAL SETTING

The culture of the Pygmies, is being studied in the present time as they exist today.

The Pygmies have not changed too drastically throughout their 6000 year old history. According to the hyroglifics on the walls of Egyptian pharoahs' tombs, the Pygmies evolved from the primeval forest and have lived there ever since. The Pygmies are also described by the Egyptian pharoahs as the dancers of the forest.

There are about 100 thousand Pygmies in the world today. Thirty thousand of them live in Southeast Asia. Another 10 to 30 thousand live in Central Africa, outside the Ituri Forest. The remaining Pygmies live in the Ituri Forest. Of all the Pygmy tribes, the BaMbuti are the largest with about 20 thousand members.

The Pygmies are very short people. However, they are not dwarfs. They are naturally short people. The men are about four and a half feet in height and the women are slightly shorter. They have light brown skin and thick-set muscular bodies. Their powerful legs and long arms help them move and climb trees quickly and with great agility. They have flat noses and broad mouths. Their stomach area protrudes outward. Their frizzy hair is kept short to help keep the inhibitance of lice down. Their total appearance is unusual.

The Pygmies of the Ituri Forest, live on the equator in the Northeastern part of the country of Zaire. This area is also known as the Ituri Forest. The Ituri Forest is about 425 thousand square kilometres. It is a broadleaf Equatoral rain forest. The huge teak and mahogany trees act as a large canopy that hides the ever hot sun. This canopy effect keeps the Pygmies cool. It is on ancient "shields" or plains. It is in a wealthy country that is the largest producer of diamonds in the world. It is also the sixth largest producer of copper.

It is very warm and humid in the Ituri Forest. The average temperature is between 25 and 30 degrees Centigrade. The average rainfall is between 15 and 20 centimetres. This warm climate is called a Tropical Climate.

The bodies of water around or in the Ituri Forest are rivers and lakes. The main body of water runs through the southwestern tip of the Ituri Forest. It is the 6th largest river in the world, and is 4670 kilometres long. It is the Congo River, now known as the Zaire River. There are only two lakes in the Ituri Forest. They are Lake Albert, now known as Lake Mobutu Sese Seko, and Lake Edward. There are about six more smaller rivers in the forest.

The plant life that appears in the Ituri Forest is very dense. The plant most used by the Pygmies is the mongongo tree. They use this plant for mainly construction purposes. Mushrooms, teak trees, mahogany trees, ferns, shrubs, and fruit-berring trees also appear in the forest.

The Ituri Forest animals range from the rabbit-size Hyrax to the mighty African Elephant. Most of the animals are used for food. Some animals like the butterfly, the frog, and the Horned Viper snake are used for archery practise by the young Pygmy boys.

PYGMIES OF THE ITURI FOREST: CHAPTER II
ECONOMIC ASPECT

Most of the tools the Pygmies have are made from the materials of the Ituri Forest. They use elephant tusks to beat bark for clothing. They use spears, bows and arrows, and nets to hunt with. The staff of the arrow or spear is made from the inner of tree branches. However, the razor-sharp iron tips are obtained through trade with the neighbouring villagers.

Pygmies are nomads, who hunt and forage for food. Some of the animals they hunt are dikar, chimpanzee, bush buck, okapi, African buffalo, wild boar, snakes, and the mighty African elephant. Nuts, berries, mushrooms, roots, and melengey are gathered. The Pygmies love the cultivated food they trade for with the villagers. However, they cannot grow crops, because it would mean permanent settlement by the Pygmies. The Pygmies enjoy more protein in their diet than other people. This protein is obtained from all the meat they eat.

In the Pygmy culture the women prepare the food. They constantly have food readily available. The women prepare the food by placing the food in baskets above the fire.

The Pygmy housing is very simple in design. They are constantly moving camp, so they must have a shelter that is easy to erect, but strong. The houses are generally placed in a circle, but any family can place it anywhere they like. The women build the houses. Small trees are bent over to

produce a beehive like frame. Then, mongongo leaves are woven through the frame. Since the mongongo leaves are so large and waterproof, the house can stand up to a tropical storm. This type of house ,which is the only type of house known to the Pygmies, takes only one to two hours to constuct, yet it can stand for about two months.

All the Pygmies wear the same clothing. It is just one piece of cloth tied around the waist which is known as a loin cloth. The loin cloth is sometimes decorated with geometrical designs. The cloth is made from the bark of a tree. The Pygmies take out the inner bark and beat it till it is soft. After about one hour of beating the cloth is soft and has increased its size to double the original piece. The climate is very warm, so they feel they do not need any other clothing. However, the children go naked till puberty.

The Pygmies do not have need for a lot of household goods. They eat from their hands and drink from folded mongongo leaves. They also have some baskets in which to store food etc.

In the Pygmy culture, the women do the most work. Hunting is the only job the men do and playing is the children's pass time. The women do everything else. It is difficult to believe how the women get any time to themselves.

Walking is the only transportation of the Pygmies. The forest is too dense for any other type moving around. The

trails through the forest are so narrow that they are almost impassable.

The Pygmies are always migrating. They migrate before food becomes too scarce in one area. They also migrate for sanitary reasons. They pack up camp and move about every month or so. The men lead the search for a new camp while the women follow with all the belongings of the group on their backs.

A language that originated from Swahili, called Kingwani, is what the Pygmies communicate with. They also speak the language of the villagers. However, the Pygmies have no written language.

In the Pygmy culture there are no kings or leaders. Therefore, everybody shares everything. Nobody owns anything or has any kind of private property.

The Pygmies do not have a money system. Instead they just trade or barter with the neighbouring villagers. They trade forest goods to the villagers and sometimes become their slaves to keep the villagers out of their forest. The Pygmies will do anything for the villagers as long as they stay out of the forest. They also trade for cultivated food and iron tips for spears and arrows.

PYGMIES OF THE ITURI FOREST: CHAPTER III
SOCIAL ASPECT

The Pygmies have 10 to 25 people per band. The families are nuclear families with two parents and one or more children. The man is the most important member of the family. He is the one who hunts and is dependant on to get the food.

Again, to keep the villagers out of the Ituri Forest, the Pygmies get married the villagers' way. First, the man and the woman to be married are rubed with expensive palm oil all over their bodies. Then the bride and bridesmaid are carefully decorated. This is the only day of a Pygmy woman's life that she recieves this much attention. The bride is then carried on a litter, holding an umbrella, to the marriage hut where they married.

When a baby is born to a Pygmy family, the father does not take part in his child's birth. When the mother feels it is time to have the child, she goes into a hut where the birth is witnessed by the mother's closest female friends. Anyone in the band will willingly babysit. Everybody helps raise the child. Therefore, the child calls every man "father" and every woman "mother". When a boy is two years old, he starts to learn how to hunt. He starts by shooting arrows at butterflies, toads and snakes. A young girl learns to cook, make sleeping mats, weave baskets etc. from unoccupied women.

When a boy is between 9 and 11 years old he goes through a villagers' ceremony to become a man. This ceremony is called an "nkumbi". His head is shaved bald. An insition is made below the waist and then it is wrapped in a healing solution containing salt. The cut is then inspected by a villager leader. Then the boy runs through the forest while he gets hit by the villagers with branches. When he cannot take anymore, the ceremony is stopped. This part of the ceremony takes the boys mind off of the insition. The boy is then covered with a white paint which represents the child dying and the adult emerging. Then he dances. However, girls do not have to go through all of this pain. Instead, they just dance with their best friends to celebrate womanhood.

The Pygmies are not very religious. They only dance to give their thanks to the forest. At their religious ceremonies they have all they do is dance and sing.

For recreation, the Pygmies play games with rocks and sticks. Most of their "fun" is showed through dancing and singing.

The women use cosmetics to decorate themselves. Human milk is mixed with wild berries to make a black color. Since there is no mirrors there, a friend applies the make-up. Each design is different because each woman has her own idea of "beautiful".

The Pygmies love to sing and dance. When they sing they slap their upper arm ,while it is folded, to create a loud sound that echos through the forest. When they dance they

love to imitate the forest animals, especially the monkey and the elephant.

PYGMIES OF THE ITURI FOREST: CHAPTER IV
POLITICAL ASPECT

The Pygmies are organized as a tribe. The authority of all the bands of this tribe are divided among the people. The older people are not really the leaders, but they have more knowledge and can help with chores.

The Pygmies are peaceful people, therefore, they do not have very many laws or punishments. However, if a Pygmy behaves in a wrong manner, he is punished properly. Stealing, bothering others, and not doing his/her share of work, are all considered to be serious offenses in a Pygmy culture. The punishment for these offenses is decided by the whole group. They range from being ignored to beaten with branches.

For protection, the Pygmies in one group try to stay away from other Pygmy groups. Even though Pygmies are peaceful people, they will fight each other if one group invades another groups' territory.

CONCLUTION

The Pygmies are unharmed in the Ituri Forest. The forest satisfies all of their needs. They cannot be taken out of the Ituri Forest otherwise they will die. This did happen once when the government of Zaire tried to bring the

Stone Age Pygmies to today's modern world. The Pygmies suffered from heat stroke and died from a lot of different illnesses. The government meant well, but they did not take all the facts into consideration. The Pygmies are the "BAMIKI BAMBULA"-the children of the forest. When the forest dies, they die...

PYGMIES OF THE ITURI FOREST: CHAPTER V
ELEPHANT HUNT

The Pygmies are hunters. Therefore, they hunt all types of animals, ranging from the rabbit-size Hyrax to the mighty African Elephant. The African Elephant is their favorite prey. It takes a lot of courage for a man to decide to hunt an animal so large, that he is the animal's only predator. When men go out to hunt an elephant, they risk their lives for the glory of bringing home a mighty prize such as this.

Before the Pygmies leave for this mighty challenge, they drink a substance called "eeko", which has the same affects as strong coffee. The men blacken their faces so the when the mighty elephant sights them, it thinks they are just chimpanzees and ignores them. The women smoke marijuana pipes while the men get ready. The marijuana grows wild in those parts of Zaire.

When the men leave, no good byes are said. The women just hope that their husband will bring home the mighty elephant carcass, which will feed the whole camp for months. The forest provides the food for the hunt. Plants such as mushrooms, grow to such great sizes, that they can feed a family. Melengey is also gathered to feed the hunters.

To track down the elephant, the Pygmy men follow fresh tracks and droppings. When the elephant is sighted, one brave man sneaks up to the beast and shoots a poisoned arrow or spear into the hide of the elephant. It then screams and

gallops through the forest. The elephant will not die for about a day, so the men follow it through the forest.

When the Pygmy men finally catch up to the elephant, it is dead. They immediately sprip the animal of its identity. For they believe, since they kill for food, they are denied spiritual mortality. The tail is cut off and sent to the Pygmy camp. When the man that carries the tail arrives at camp, no announcement is necessary. The elephant tail tells all. The camp then packs up and follows the man to the elephant carcass. When they arrive, the men are already cutting up the meat. The villagers are also taking their share for suppling the iron spear and arrow points. On the elephant carcass there is more meat than can be obtained from 100 antelopes.

The meat of the elephant carcass is smoked to make it easier and lighter to carry. By the time it is finished being smoked, the carcass would have lost over half its original weight. The raw bone marrow is eaten by the children like candies.

The Pygmies then leave the carcass to set up a new camp. What is left of the carcass is consumed by the scavengers, such as flies and ants. The Pygmies then dance to honour the man who killed the mighty beast. After this, the men dance an elephant dance, to show the group how they had killed the elephant. The man that killed the elephant recieves such a great honour, that the group will remember his courage always.

PYGMIES OF THE ITURI FOREST:
GLOSSARY

bopi	a small clearing near the camp, set aside as a playground for children
canopy	an overhead roof or shade
duikers	small antelopes
hyrax	an African tree-dweller, resembles a badger
melengey	a fungis that grows in termite and ant hills. It tastes like mushroom.
mongongo	a tree-like jungle shrub. The large heart shaped leaves are often two feet across
okapi	a rare purplish-brown jungle animal. It has whitish stripes on the upper forelegs and thighs and giraffe like ears
tropical	warm and humid with heavy rainfall

THE SIAMESE CAT

BY WESLEY .

The Siamese is a very unique animal. It has many interesting characteristics. Some of these characteristics include: it's slender body, unique voice, pretty colors, and strange habits.

I will begin with the Siamese cats color (because it is it's best characteristic).The Siamese comes in many different colors. Some of these colors include: chocolate brown; red; cream; white; and black. The colors of the Seal Point Siamese in my opinion, are the prettiest. This type has a chocolate brown face, tail, feet and sometimes even a chocolate brown stripe on it's stomach. The next best feature is the Siamese's blue eyes. Not all Siamese have blue eyes but it makes them much more attractive. Siamese cats have few faults, although they can be born with crossed eyes and kinks in their tails. All Siamese cats have snake-like heads and bodies. This is one of the many charecteristics that makes them special.

Siamese cats have a very special voice. Some people dislike it very much because it is considered quite rough and irritating. This breed of cat has many special habits and facts concerning it. Assorted Siamese cats were given to the King of Siam who bred and sold them. The cats were named after their original country - Siam (now know as Thailand), and that is how they came to be known as Siamese cats!

A CERTAIN RIGHT

When I was 5 or 6 I thought that one of life's greatest injuctices was not being able to choose your own parents...

Every day it was "clean up your room!!", "It's past your bedtime!" or something similar. I wished that it could have been possible to have choosen the parents I wanted...parents that would let you do anything you wanted; sleep all day or stay home from school. One of the things I hated the most was going to bed early. I went through a nightly routine of getting into my pyjamas and brushing my teeth.

Mornings were bad too. I was shaken awake every morning by my mother or bigger brother, and I wished that they were dead. One good thing about my mornings was that my dad was never around to hassle me. He was always at work.

In some ways, I enjoyed being 5 or 6...I could watch the television set unless I was bad, and I never got any homework. I often wished though that I had the opportunity to choose my own parents.

UNDERGROUND

One day while I was jogging down the street, reading my daily newspaper, and listening to my headset, I suddenly tripped into a manhole that I did not know was in my path.

As I landed, I felt a throbing pain in my leg. I tried to steady myself, and when I did, I looked down with fright and saw my leg dangling by the skin. I screamed. When my eyes stopped dripping, I told myself to stay calm and settle down. I never was very good at telling myself to do something. I once again started to scream. I dragged myself down the sewer until I encountered rats. I went down another path with the rats following at my heels. I had just made the biggest mistake of my life, I was cornered. At this time I was happy that I was a smoker. I pulled my lighter out of my pocket and started it up. It was enough to ward off the rats until it ran out of lighter fluid. Then something else very unexpected happened. The stone wall behind me was removed and I was dragged into a large smoke-filled room by a huge person that I could swear was a wrestler if I had not seen his face. I was seated down at a table and turned to face a short man in a suit and tie. The man pulled out a picture and stared into my face.

"This isn't the one!!" he shouted.

These people were looking for someone named Mugsy Rock, and I had been taken hostage because of a mistaken identity!!

HALLEY'S COMET

Halley's Comet is a very rare sight. It comes around to earth every 76 years. It is named Halley's Comet after the man who predicted it's return. Edmond Halley was an Astrologer who lived in England. He saw the comet travel past the earth and predicted it's return every 76 years. Of course by the time it returned, Mr. Halley was dead. In commemoration, of him the comet was named after him.

A comet is not what you might expect. It is a large ball of ice and dust that travels through the air at great speed. It propells itself by jets of gas that shoot out of it's nucleus. The comet's tails are made of dust and gas. The comet has two quite noticeable tails, one being larger than the other. The comet's tails always point away from the sun. This is because of the Sun's solar wind which blows the tail away from the Sun.

Scientists have recorded many of the comet's visits, including it's visit in 1905 and 1985. Five space probes have been sent to rendezvous with the Comet. Some of these are: Giotto, which was named after an European artist and was Europe's only misson; Vega 1 and Vega 2, two Russian probes; and two Japanese missions. The European probe, Giotto, is to venture as close as possible to the comet's nucleus.

If all of these missions are successful, we will have much more knowledge about comets and why they exist.

St. Albert, Alberta,
Canada T8N 0Z2

January 30, 1986.

Dear NASA Officials:

My name is Wesley , and I am a grade 7 student at Junior High School in St. Albert, Alberta, Canada. I felt that you would be interested to know how a regular civilian feels about what happened to the space shuttle Challenger on Tuesday, January 28, 1986.

It was a very tragic malfunction and I was saddened to hear about it. I feel that space exploration should be continued regardless of this tragedy. I am certain that the astronauts who perished dedicating their time and effort to this mission would feel the same way.

The future of many children around the world depends upon what becomes of accidents like this. What is important is that we learn from this tragic event so that we can do everything possible to prevent it from occuring again.

When I came home from school that day I was shocked at what had happened and I hoped that something good would come from all of it. I was distressed to hear that all seven astronauts had died. I do however feel that it was a good idea to finally send a citizen passenger to space. The chances for civilians to travel in space is approaching more rapidly.

I hope that you will continue in your space exploration efforts and that we can all learn from this terrible tragedy. I feel that you are doing an excellent job in space exploration and I would like you to know that you have my complete support.

Yours truly,

Wesley

THE PYGMIES OF THE ITURI FOREST

BY WESLEY

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CULTURAL SETTING

The Pygmies have remained unchanged for about 6000 years. They have made little contact with other civilizations except with a nearby village from where they receive most of their weapons and harvested food. The group population has remained at about 40 000 for aproximately the past 6000 years. This is because the pygmies do not allow outsiders to join the group. The appearance of the Pygmies is quite serious. A full grown man or woman only weighs about 90 pounds (40 kilograms), is about 4' 8", has dark brown skin, a generaly flat nose, and has black hair. The boys look similar to the men but are smaller as are the girls to the women.

The homeland of the Pygmies is located in Zaire in the Ituri Forest. The Ituri is about 90 000 square kilometres or 50 000 square miles. In the group's homeland there are sections where the people may build their huts. They are generaly set in a circle but this is not a law.

The terrain in the Ituri is very rough. They live in a forest and do not regularly leave it. The rain forest is generaly quite damp and the temperature is usually quite hot. There are two main seasons: a dry season, and a rainy season. The rainy season means the coming of the Monsoon rains and they bring with them floods.

The Ituri Forest has many different supplies of water. Some of them are: River Ituri; Congo River; Lake Mai Ndombe; Lake Edward; and Lake Albert. The Pygmies receive most of their water from streams and River Ituri.

The Ituri has many different types of plants and animals. One of the most widely used materials is a plant. The Mongongo plant's leaves are used for many different things. There are many different animals in the forest and some of them are: Okapis; African Buffalos; Elephants; Boa Constrictors and many more.

ECONOMIC ASPECT OF CULTURE

The Pygmies rely on many tools for many things. Bows and Arrows, Snares, Nets, Helmets, Baskets, Bowls, and Chairs are only eight of the most important tools they have.

The Pygmies eat a variety of foods. They have a very nutritious diet. Some of the foods they eat are: bone marrow; mushrooms; bush antelope; snakes; honey; monkeys; wild boars; toads; okapis; elephants; and many other nuts, berries, leaves, roots, and wild fruits. They preserve and cook their meat by smoking it over a fire, and they also dry the plants. One of their favorite foods is fungi. This fungi comes from termite hills where the termites make it out of leaves and waste.

The Pygmies housing is made of Mongongo leaves and sticks that are drilled into the ground and tied together with strips of wood. The huts are covered with Mongongo leaves and when the Pygmies leave, the huts are left to the forest. Every family has a hut to live in. The floors are covered with Mongongo leaf mats and this is what they sleep and sit on.

Clothing is not a major factor in the life of the Pygmies because they do not wear much. The clothing they do wear is made from tree bark that has been pounded to make it flat and it greatly increases the size of the bark. The Pygmies have no fixed tribal

pattern and they decorate with berry juice.

The Pygmies do not have much furniture. The two items they do have are chairs and mats. The mats are made out of Mongongo leaves and are woven by the women. The Pygmies do have many different domestic goods. These are such things as pots, jugs, and dishes. All of these are handmade.

Each Pygmy has work to do. The men do such things as go on elephant hunts, but they never become involved with the birth of their child. To every child the men are considered father while every women is considered mother. The women do such things as make the huts, make the mats, and cook the meat.

Transportation is walking for the Pygmies because they must travel through the jungle and through very thick bush.

Every month the Pygmies move to another part of the forest either because food is scarce or supplies are scarce. The Pygmies are nomadic. They have very few personal possessions so it is easy to move. Each time they move they build new huts.

The Pygmies speak Swahili but do not have a written language. They communicate with the neighbouring village because they speak the same language.

The Pygmies have no money system. They trade and barter for goods.

SOCIAL ASPECT OF CULTURE

The Pygmy family consists of two parents and a number of children. The most important member of the family is the father. He supplies the food for his family. The women are also important. They take care of the family and do most of the work like building the huts. The marriage process is quite complicated. The groom is rubbed with expensive palm oil to create an attractive smell. The bride is decorated carefully and then beaten to ward off evil. There is an antelope given to the brides father to insure friendship. The bride is given many gifts to enhance her value. The bride is carried to the marriage hut and then escorted inside.

The mother is given responsibility for raising the children and teaches them as they grow.

The boys are taught few things. One of them is to hunt. They start hunting butterflies, them move up to toads, snakes, and them to bigger animals. The girls are taught how to construct huts, mats, how to cook and many other things.

The Pygmies have a special cerimony that each boy goes through before he is considered an adult. This is circumcision.

The Pygmies do not consider themselves religious, but joyful.

The Pygmies have no laws but if something is done wrong the offender(s) can be punished. The one punishment that is regularly used is to destroy the hut of the offender(s).

The Pygmy Adults do not regularly play with the children, but the women do play as they teach the girls.

Some of the things regarded as pretty to the Pygmies, might be considered ugly to us. One of the things the Pygmy women do is sharpen their teeth to a point. They do other things such as decorating their faces and their clothes.

The Pygmies have celebrations for various things. They celebrate sucessful hunts and other things.

POLITICAL ASPECT OF CULTURE

One tribe may consist of about 25 families. They are not organized in a specific way. The Pygmies have no group leaders except a chief. There is always someone leading on a hunt.

The one way the Pygmies protect themselves from other tribes is simply by hiding.

CONCLUSION

The Pygmies were almost destroyed once due to the modernizing of their ways. The government tried to modernize the Pygmy life and it caused near disaster. The Pygmies were moved out of the Rain Forest until medical orders were given out saying that one by one the Pygmies were dying out. Due to the government calling off the experiment, the Pygmies can still live in peace in the Ituri Forest.

THE END!!